2018-2019

Term 1

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Grade 8 Revision

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<u>All</u> Students Should answer Test form 1A–1B
<u>Most</u> students Should answer Test form 2A–2B
<u>Few</u> students Should answer Test form 3A–3B

Test, Form 1A

Write the letter for the correct answer in the blank at the right of each question.

1. What is the fraction $\frac{6}{11}$ written as a decimal?

    A. 0.54 **B.** $0.\overline{54}$ **C.** 0.55 **D.** 0.611

    1. _____

2. What is the value of the expression $(-4)^3$?

    F. -64 **G.** -12 **H.** 12 **I.** 64

    2. _____

3. Which of the following is $0.\overline{7}$ as a fraction in simplest form?

    A. $\frac{7}{12}$ **B.** $\frac{7}{11}$ **C.** $\frac{7}{10}$ **D.** $\frac{7}{9}$

    3. _____

4. Using exponents, what is the simplified form of the expression $\frac{10^{15}}{10^3}$?

    F. 10^{18} **G.** 10^{12} **H.** 10^5 **I.** 1^{12}

    4. _____

5. Using exponents, what is the simplified form of the expression $6^5 \cdot 6^2$?

    A. 6^7 **B.** 6^{10} **C.** 36^7 **D.** 36^{10}

    5. _____

6. Rory's garden is square in shape. The length of one side of her garden is 5^2 feet. What is the area of her garden in square feet? Express your answer using exponents.

    F. 10^4 **G.** 10^2 **H.** 5^4 **I.** 625

    6. _____

7. What is the simplified form of the expression $(3x^4)^3$?

    A. $9x^7$ **B.** $9x^{12}$ **C.** $27x^7$ **D.** $27x^{12}$

    7. _____

8. What is the next term in the pattern $3^2 = 9$, $9^2 = 81$, $81^2 = 6{,}561$,...?

    F. $324 + 2 = 326$ **H.** $6{,}561^2 = 43{,}046{,}721$
    G. $324 \times 1 = 324$ **I.** $324 \times 2 = 648$

    8. _____

9. How is the expression 5^{-3} written using a positive exponent?

    A. 3^5 **B.** 5^3 **C.** 15 **D.** $\frac{1}{5^3}$

    9. _____

10. How is the fraction $\frac{1}{2^3}$ written using a negative exponent?

    F. -3^2 **G.** -2^3 **H.** 2^{-3} **I.** 3^{-2}

    10. _____

11. What is 3.471×10^{-5} written in standard form?

    A. 3,471,000 **B.** 347,100 **C.** 0.0003471 **D.** 0.00003471

    11. _____

Test, Form 1A   *(continued)*

12. In one 24-hour day there are 86,400 seconds. What is this number written in scientific notation?

F. 8.64×10^4 **G.** 8.64×10^2 **H.** 864×10^{-2} **I.** 864×10^{-4}

12. _____

13. What is the value of the expression below written in scientific notation?

$$(2.5 \times 10^3)(3 \times 10^2)$$

A. 750,000   **B.** 7.5×10^5 **C.** 7,500,000   **D.** 7.5×10^6

13. _____

14. What is the value of the expression below written in scientific notation?

$$(4.7 \times 10^5) - (2.8 \times 10^3)$$

F. 467,200   **H.** 1.9×10^3

G. 4.672×10^5 **I.** 1.9×10^2

14. _____

15. The speed of light is approximately 3×10^8 meters per second, while the speed of sound is approximately 3.4×10^2 meters per second. How many times faster is the speed of light than the speed of sound?

A. 9×10^3 **B.** 9×10^4 **C.** 9×10^5 **D.** 9×10^6

15. _____

16. What is the solution of the equation $y^2 = 64$?

F. 32   **G.** 8   **H.** 8 or −8   **I.** −8

16. _____

17. Which point is closest to $\sqrt{29}$ on the number line?

A. A **B.** B **C.** C **D.** D

17. _____
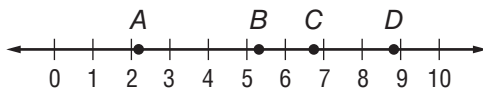
18. To which set of numbers $\frac{7}{8}$ belong?

F. rational   **G.** integer   **H.** irrational   **I.** whole

18. _____

19. Which set of numbers is ordered from least to greatest?

A. $\left\{2.82, \sqrt{8}, \sqrt{11}, 3\frac{1}{2}\right\}$ **C.** $\left\{-\sqrt{16}, -\sqrt{17}, -\sqrt{18}, -\sqrt{19}\right\}$

B. $\left\{\sqrt{5}, -\sqrt{6}, 2\frac{1}{2}, -3\right\}$ **D.** $\left\{\sqrt{10}, 4, \sqrt{4}, 1.5\right\}$

19. _____

20. What is the value of $\sqrt[3]{8}$?

F. 2   **G.** 3   **H.** 8   **I.** 24

20. _____

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

1. What is the fraction $\frac{3}{11}$ written as a decimal?

   A. 0.27   **B.** $0.\overline{27}$ **C.** 0.28   **D.** 0.311

   1. _____

2. What is the value of the expression $(-3)^5$?
   F. -243 **G.** -15 **H.** 15   **I.** 243

   2. _____

3. Which of the following is $0.\overline{5}$ as a fraction in simplest form?
   A. $\frac{5}{9}$ **B.** $\frac{5}{10}$ **C.** $\frac{5}{11}$ **D.** $\frac{5}{12}$

   3. _____

4. Using exponents, what is the simplified form of the expression $\frac{5^{10}}{5^5}$?
   F. 5^{50} **G.** 5^{15} **H.** 5^5 **I.** 1^5

   4. _____

5. Using exponents, what is the simplified form of the expression $2^4 \cdot 2^7$?
   A. 14^{28} **B.** 2^{28} **C.** 2^{11} **D.** 2^3

   5. _____

6. The game of checkers is played on a square board. If the length of one side of the board is 4^2 inches, what is the area of the board in square inches? Express your answer using exponents.
   F. 8^4 **G.** 4^4 **H.** 8^2 **I.** 32

   6. _____

7. What is the simplified form of the expression $(4x^3)^3$?
   A. $64x^9$ **B.** $64x^6$ **C.** $12x^6$ **D.** $12x^9$

   7. _____

8. What is the next term in the pattern 100, 88, 76, 64, …?
   F. 12   **G.** 24   **H.** 36   **I.** 52

   8. _____

9. How is the expression 4^{-2} written using a positive exponent?
   A. 2^4 **B.** 4^2 **C.** 8   **D.** $\frac{1}{4^2}$

   9. _____

10. How is the fraction $\frac{1}{5^2}$ written using a negative exponent?
    F. -2^5 **G.** 5^2 **H.** 5^{-2} **I.** 2^{-5}

    10. _____

11. What is 2.1×10^4 written in standard form?
    A. 210,000   **B.** 21,000   **C.** 0.0021   **D.** 0.000021

    11. _____

Test, Form 1B (continued)

12. In one week there are 10,080 minutes. What is this number in scientific notation?

F. 10.08×10^3 **G.** 1.008×10^4 **H.** 10.08×10^{-1} **I.** 1.008×10^{-4}

12. _____

13. What is the value of the expression below written in scientific notation?

$$(4.2 \times 10^2)(2 \times 10^3)$$

A. 840,000   **B.** 8.4×10^5 **C.** 8,400,000   **D.** 8.4×10^6

13. _____

14. What is the value of the expression below in scientific notation?

$$(4.7 \times 10^5) + (2.8 \times 10^3)$$

F. 4.728×10^{-8} **H.** 4.728×10^5

G. 4.7282×10^{-5} **I.** 472,800

14. _____

15. The top speed of a cheetah is approximately 1.2×10^2 kilometers per hour, while the speed of the fastest human is approximately 4×10^1 kilometers per hour. How many times faster is the top speed of a cheetah than the speed of a human?

A. 3×10^0 **B.** 3×10^1 **C.** 3×10^2 **D.** 3×10^3

15. _____

16. What is the solution of the equation $y^2 = 900$?

F. 30 or -30 **G.** -30 **H.** 30   **I.** 450

16. _____

17. Which point is closest to $\sqrt{41}$ on the number line?

A. A   **B.** B   **C.** C   **D.** D

17. _____
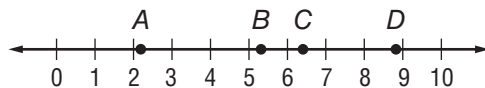
18. To which set of numbers does -5.2 belong?

F. rational   **G.** integer   **H.** irrational   **I.** whole

18. _____

19. Which set of numbers is ordered from least to greatest?

A. $\{\sqrt{8}, 3, \sqrt{3}, 1.5\}$ **C.** $\{-\sqrt{21}, -\sqrt{22}, -\sqrt{23}, -\sqrt{24}\}$

B. $\{\sqrt{7}, -\sqrt{8}, 4\frac{1}{7}, -4\}$ **D.** $\{3.31, \sqrt{11}, \sqrt{13}, 3.61\}$

19. _____

20. Which is the value of $\sqrt[3]{27}$?

F. 2.7   **G.** 3   **H.** 9   **I.** 81

20. _____

Test, Form 2A

Write the letter for the correct answer in the blank at the right of each question.

1. What is the value of the expression $(-4)^3$?

   A. -64 **B.** -12 **C.** 12 **D.** 64

                                       1. _____

2. Using exponents, what is the simplified form of $\frac{12x^5}{6x^2}$?

   F. 2^3 **G.** 6^3 **H.** $6x^3$ **I.** $2x^3$

                                       2. _____

3. Using exponents, what is the simplified form of $(-3x^4y^2)^2$?

   A. $-6x^6y^4$ **B.** $6x^6y^4$ **C.** $-9x^8y^4$ **D.** $9x^8y^4$

                                       3. _____

4. How is the expression 10^{-5} written using a positive exponent?

   F. -10^5 **G.** $\frac{1}{10^5}$ **H.** 10^{-5} **I.** 0.0001

                                       4. _____

5. The Statue of Liberty weighs 450,000 pounds. What is this number written in scientific notation?

   A. 4.5×10^{-5} **C.** 4.5×10^4

   B. 4.5×10^{-4} **D.** 4.5×10^5

                                       5. _____

6. What is the value of the expression $-\sqrt{\frac{144}{100}}$?

   F. -120 **G.** $\frac{36}{25}$ **H.** $-\frac{6}{5}$ **I.** $\frac{6}{5}$

                                       6. _____

7. To the nearest whole number, what is the best estimate of $\sqrt{214}$?

   A. 9 **B.** 15 **C.** 36 **D.** 41.5

                                       7. _____

8. Which of the following is equivalent to $-\frac{9}{15}$?
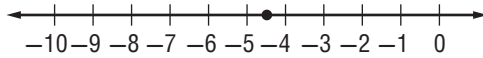
   F. -9.15 **G.** -0.6 **H.** 0.6 **I.** 9.15

                                       8. _____

9. Which of the following is equivalent to $0.\overline{75}$?

   A. $\frac{3}{4}$ **B.** $\frac{75}{100}$ **C.** $\frac{25}{33}$ **D.** $7\frac{1}{2}$

                                       9. _____

Test, Form 2A   *(continued)*

10. The area of a square sandbox is 83 square feet. To the nearest foot, what is the perimeter of the sandbox?

    F. 9 ft   **G.** 9.1 ft   **H.** 36 ft   **I.** 41.5 ft   **10.** _____

11. Which number best represents the point graphed on the number line?

    −10 −9 −8 −7 −6 −5 −4 −3 −2 −1 0

    A. $\sqrt{-20}$ **B.** $-\sqrt{20}$ **C.** $-\sqrt{25}$ **D.** $\sqrt{25}$ **11.** _____

12. The band is selling 50 hats for a fundraiser. Each hat is being sold for $12. The hats cost a total of $400. If they sell all of the hats, how much money will be raised by the band? Use the *four-step plan*.   **12.** _____

13. Recently in the United States, there were about 300,000,000 cell phone users. That same year, there were 5.7×10^9 cell phone users worldwide. About how many times larger was the number of cell phone users worldwide than in the United States?   **13.** _____

14. Tito is installing a new kitchen floor. The kitchen is square in shape and has an area of 441 square feet. What is the length of one side of Tito's kitchen?   **14.** _____

15. Name one whole number, one integer, one rational number, and one irrational number. Do not use the same number twice.

                                      15. _____

                                        Whole: _____

                                        Integer: _____

                                        Rational: _____

                                        Irrational: _____

16. Find $\sqrt[3]{216}$.   **16.** _____

17. Estimate $\sqrt[3]{130}$ to the nearest whole number.   **17.** _____

18. Solve the equation $x^2 = 400$.   **18.** _____

Test, Form 2B

Write the letter for the correct answer in the blank at the right of each question.

1. What is the value of the expression $(-2)^5$?

    A. 32   **B.** 10   **C.** -10 **D.** -32

1. _____

2. Using exponents, what is the simplified form of $\dfrac{15x^6}{3x^2}$?

    F. $5x^4$ **G.** $5x^3$ **H.** $5x$ **I.** 5

2. _____

3. Using exponents, what is the simplified form of $\left(-2x^2\,y^3\right)^3$?

    A. $-6x^5y^6$ **B.** $6x^5y^6$ **C.** $-8x^6y^9$ **D.** $8x^6y^9$

3. _____

4. How is the expression 10^{-3} written using a positive exponent?

    F. 0.001   **G.** 10^{-3} **H.** $\dfrac{1}{10^3}$ **I.** -10^3

4. _____

5. The Washington Monument weighs approximately 90,800 tons. What is this number written in scientific notation?

    A. 9.08×10^5 **C.** 9.08×10^{-4}

    B. 9.08×10^4 **D.** 9.08×10^{-5}

5. _____

6. What is the value of the expression $-\sqrt{\dfrac{196}{81}}$?

    F. $\dfrac{14}{9}$ **G.** $\dfrac{14}{81}$ **H.** $-\dfrac{14}{81}$ **I.** $-\dfrac{14}{9}$

6. _____

7. To the nearest whole number, what is the best estimate of $\sqrt{444}$?

    A. 21   **B.** 21.1   **C.** 22   **D.** 23

7. _____

8. Which of the following is equivalent to $\dfrac{-13}{40}$?

    F. 13.40   **G.** 3.25   **H.** 0.325   **I.** -0.325

8. _____

9. Which of the following is equivalent to $0.\overline{45}$?

    A. $\dfrac{9}{20}$ **B.** $\dfrac{45}{100}$ **C.** $\dfrac{5}{11}$ **D.** $2\dfrac{1}{5}$

9. _____

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Test, Form 2B   *(continued)*

10. The area of a square ice rink is 404 square yards. To the nearest yard, what is the perimeter of the rink?

   F. 80 yd   **G.** 40 yd   **H.** 20.1 yd   **I.** 20 yd

   10. _____

11. Which number best represents the point graphed on the number line?
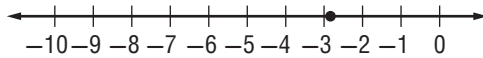
   A. $\sqrt{-10}$ **B.** $-\sqrt{10}$ **C.** $-\sqrt{8}$ **D.** $\sqrt{8}$

   11. _____

12. For a fundraiser, the basketball team is selling 75 wrist bands for $3 each. The wrist bands cost a total of $37.50. If they sell all of the wrist bands, how much money will be raised by the team? Use the *four-step plan*.

   12. _____

13. In a recent year, there were about 400,000,000 mobile internet users. That same year, there were about 1.2×10^9 desktop internet users. About how many times larger was the number of desktop internet users than the number of mobile internet users?

   13. _____

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14. Natasha is seeding her backyard. The backyard is square in shape and has an area of 4,225 square feet. What is the length of one side of Natasha's backyard?

   14. _____

15. Name a number that is not a whole number, a number that is not an integer, a number that is not a rational number, and a number that is not an irrational number. Do not use the same number twice.

   15. _____

   Not Whole: _____

   Not Integer: _____

   Not Rational: _____

   Not Irrational: _____

16. What is the value of $\sqrt[3]{1,000}$?

   16. _____

17. Estimate $\sqrt[3]{30}$ to the nearest whole number.

   17. _____

18. Solve the equation $x^2 = 900$.

   18. _____

Test, Form 3A

1. Evaluate the given expression if $a = 4$ and $b = -3$.

$$a^2 - b^3$$

1. _____

Simplify using the Laws of Exponents. Write each expression using a positive exponent.

2. $\dfrac{n^7}{n^3}$

2. _____

3. $-4x^2y(-3xy^3)$

3. _____

4. $[(u^3)^2]^4$

4. _____

5. $\dfrac{42c^4}{-6c^{12}}$

5. _____

6. Marta is making a quilt in the shape of a square. The length of one edge of the quilt is $2g^2h^3$. What is the area of the quilt?

6. _____

7. Write 2.18 as a mixed number in simplest form.

7. _____

8. Write 7^{-5} using a positive exponent.

8. _____

9. Find the missing exponent in the equation $3y^5 \cdot y^\square = 3y^{10}$

9. _____

10. The volume of a drop of water is 0.00005 liter. Write this number in scientific notation.

10. _____

11. Write 3.07×10^{-4} in standard form.

11. _____

Test, Form 3A   *(continued)*

12. Evaluate the expression. Express the result in scientific notation.

$$(1.2 \times 10^4)(3.2 \times 10^{-6})$$

12. _____

13. The closest distance from Venus to Earth is about 40,000,000 kilometers. The closest distance from Saturn to Earth is about 1.2×10^9 kilometers. How many times closer to Earth is Venus than Saturn? Write your answer in standard notation.

13. _____

14. Evaluate $(2.1 \times 10^4) + (5.68 \times 10^{-2})$. Express the result in standard form.

14. _____

15. Find $\sqrt[3]{729}$.

15. _____

16. The area of a square carpet tile is 900 square centimeters. What is the length of one edge of the tile?

16. _____

17. Without using a calculator, which is greater, 8 or $\sqrt[3]{510}$? Explain your reasoning.

17. _____

18. Which number(s) in the set listed below are irrational numbers?

$$\left\{-\frac{2}{5}, 0.005, 3.2 \times 10^{-4}, \pi, \sqrt{13}\right\}$$

18. _____

19. Order the set of numbers from least to greatest.

$$\left\{4.509, \frac{229}{50}, 4.09, \sqrt{21}\right\}$$

19. _____

20. Graph $\sqrt{32}$ on the number line.

20. _____

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Test, Form 3B

1. Evaluate the given expression if $a = -2$ and $b = 5$.
$$a^3 + b^2$$

1. _____

Simplify using the Laws of Exponents. Write each expression using a positive exponent.

2. $\dfrac{p^5}{p^3}$

2. _____

3. $5x^4y^2(-2x^2y)$

3. _____

4. $[(p^2)^5]^2$

4. _____

5. $\dfrac{-28d^3}{7d^{18}}$

5. _____

6. The game of chess is played on a square shaped board. If the length of one edge of the board is $3m^4n$, what is the area of the board?

6. _____

7. Write 5.62 as a mixed number in simplest form.

7. _____

8. Write a^{-6} using a positive exponent.

8. _____

9. Find the missing exponent in the equation $-6x^{10} \cdot x^{\square} = -6x^{14}$

9. _____

10. The volume of a drop of a certain oil is 0.00002 liter. Find and write the volume of 8 drops of the oil in scientific notation.

10. _____

11. Write 2.01×10^5 in standard form.

11. _____

Test, Form 3B   *(continued)*

12. Evaluate the expression. Express the result in scientific notation.
$$(4.3 \times 10^2)(1.1 \times 10^{-7})$$

12. _____

13. The closest distance from Venus to the Sun is about 46,000,000 kilometers. The closest distance from Neptune to the Sun is about 4.5×10^9 kilometers. About how many times closer to the Sun is Venus than Neptune? Write your answer in standard notation.

13. _____

14. Evaluate $(3.61 \times 10^{-4}) + (7.8 \times 10^2)$. Express the result in standard form.

14. _____

15. Find $\sqrt[3]{512}$.

15. _____

16. The area of a square ceiling tile is 576 square inches. What is the length of one edge of the tile?

16. _____

17. Without using a calculator, which is greater, 7 or $\sqrt[3]{345}$? Explain your reasoning.

17. _____

18. Which number(s) in the set listed below are irrational numbers?
$$\left\{ -\frac{3}{7}, \pi, 0.03, 2.1 \times 10^8, \sqrt{19} \right\}$$

18. _____

19. Order the set of numbers from least to greatest.
$$\left\{ 5.4, \frac{537}{100}, 5.09, \sqrt{29} \right\}$$

19. _____

20. Graph $\sqrt{56}$ on the number line.

20. _____

Test, Form 1A

Write the letter for the correct answer in the blank at the right of each question.

Translate each sentence into an equation.

1. The sum of five times a number and −6 is −2.

    A. $-6n + 5 = -2$ **C.** $5n - (-6) = -2$

    B. $\frac{n}{5} - 6 = -2$ **D.** $5n + (-6) = -2$ **1.** _____

2. Three less than one-half a number is −71.

    F. $-\frac{1}{2}n + 2 = -71$ **H.** $\frac{1}{2}n - 3 = -71$

    G. $2n - \frac{1}{2} = -71$ **I.** $3 - \frac{1}{2}n = -71$ **2.** _____

Solve each equation.

3. $10 + \frac{1}{3}y = 1$

    A. -30 **B.** -27 **C.** 27 **D.** 30 **3.** _____

4. $-0.4w = 4.2$

    F. 105 **G.** -10.5 **H.** -105 **I.** 10.5 **4.** _____

5. $\frac{x}{2} - 5 = -3$

    A. 4 **B.** 1 **C.** -4 **D.** -16 **5.** _____

6. $-5 - 3w = 7w$

    F. 4 **G.** 2 **H.** -0.5 **I.** -2 **6.** _____

7. $\frac{4}{7}w = 16$

    A. 4 **B.** 14 **C.** 28 **D.** 112 **7.** _____

8. Marianna wants to buy a new tennis racket that costs $57.50. She has $8 and plans to save $4.50 each week. How many weeks will it take her to save the money?

    F. 24 weeks   **H.** 11 weeks

    G. 15 weeks   **I.** 10 weeks   **8.** _____

Test, Form 1A   *(continued)*

9. In a contest, each finalist must answer 5 questions correctly. Each question is worth twice as much as the question before it. The fifth question is worth $1,600. How much is the first question worth?

    A. $800   **C.** $200

    B. $400   **D.** $100   9. _____

Solve each equation.

10. $4x - 2 = 22 - 8x$

    F. -6 **G.** -2 **H.** 2 **I.** 6 10. _____

11. $5n - 12 = -3n + 4$

    A. 2 **C.** all real numbers

    B. 1 **D.** -2 11. _____

12. $49 - 3m = 4m + 14$

    F. all real numbers   **H.** 3

    G. 5 **I.** 1 12. _____

13. $-2y - 3y + 8 = 8 - 5y - 12$

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    A. -11 **B.** 2 **C.** null set   **D.** 11 13. _____

14. $-3(p + 2) = -30$

    F. $-\dfrac{32}{3}$ **G.** 8 **H.** null set   **I.** $\dfrac{-32}{3}$ 14. _____

15. $0.4(2 - q) = 0.2(q + 7)$

    A. -3 **C.** 3

    B. -1 **D.** all real numbers   15. _____

16. The Hazell family has 4 children. Murphy is 1 year younger than his older brother Michael. Keira is 2 years younger than Murphy. Isabelle and Keira are twins. If Michael is 8, how old is Isabelle?

    F. 8 **H.** 5

    G. 7 **I.** 4 16. _____

17. Sarah and Bryan went shopping and spent a total of $47.50. Bryan spent $15.50 less than what Sarah spent. How much did Bryan spend?

    A. $31.50   **C.** $16

    B. $31   **D.** $15.50   17. _____

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

Translate each sentence into an equation.

1. Four times a number increased by 3 is −89.

    A. $-3n + 4 = -89$ **C.** $4n + 3 = -89$

    B. $4n - 3 = -89$ **D.** $4 + 3n = -89$ **1.** _____

2. Five more than three-fourths a number is −19.

    F. $-\frac{3}{4}n + 5 = -19$ **H.** $\frac{3}{4}n + 5 = -19$

    G. $5n - \frac{3}{4} = -19$ **I.** $5 - \frac{3}{4}n = -19$ **2.** _____

Solve each equation.

3. $15 + \frac{1}{4}p = 2$

    A. 60   **B.** −52   **C.** 52   **D.** −60   **3.** _____

4. $-0.5x = 3.6$

    F. −72   **G.** −7.2   **H.** 7.2   **I.** 72   **4.** _____

5. $\frac{d}{3} - 10 = -2$

    A. 36   **B.** 24   **C.** −24   **D.** −36   **5.** _____

6. $8 - 3m = 26$

    F. 18   **G.** 6   **H.** −6   **I.** −18   **6.** _____

7. $\frac{7}{9}w = 56$

    A. 8   **B.** 9   **C.** 72   **D.** 504   **7.** _____

8. Guadalupe wants to buy new goggles that cost $31.50. She has $4.50 and plans to save $2.25 each week. How many weeks will it take her to save the money?

    F. 14 weeks   **H.** 11 weeks

    G. 12 weeks   **I.** 10 weeks   **8.** _____

Test, Form 1B (continued)

9. In a contest, each finalist must answer 4 questions correctly. Each question is worth twice as much as the question before it. The fourth question is worth $2,000. How much is the first question worth?

   A. $1,000   **C.** $250

   B. $500   **D.** $125   **9.** _____

Solve each equation.

10. $3x - 4 = 18 + 5x$

   F. 22   **G.** 11   **H.** -11 **I.** -22 **10.** _____

11. $4u - 2 = -6u + 28$

   A. -15 **C.** all real numbers

   B. 3   **D.** 15   **11.** _____

12. $-3x + 3 = -15 + 6x$

   F. null set   **G.** 2   **H.** 4   **I.** -2 **12.** _____

13. $-6x - x + 10 = 15 - 7x - 5$

   A. all real numbers   **C.** 10

   B. -12 **D.** 12   **13.** _____

14. $-2(p - 1) = 15$

   F. $\frac{13}{2}$ **H.** 8

   G. all real numbers   **I.** $-\frac{13}{2}$ **14.** _____

15. $0.3(r + 2) = -0.1(-2r - 4)$

   A. -22 **B.** -1 **C.** -2 **D.** null set   **15.** _____

16. The Walsh family has 4 children. Ryan is 2 years younger than his older brother Patrick. Kelly is 2 years younger than Ryan. Caroline and Kelly are twins. If Patrick is 12, how old is Caroline?

   F. 8   **H.** 10

   G. 9   **I.** 11   **16.** _____

17. Chris and Lisa went shopping and spent a total of $25.50. Lisa spent $13.50 more than what Chris spent. How much did Lisa spend?

   A. $12   **C.** $19

   B. $19.50   **D.** $6.50   **17.** _____

Test, Form 2A

Write the letter for the correct answer in the blank at the right of each question.

Translate each sentence into an equation.

1. 12 birds are 3 more than twice the number of birds Rhonda saw yesterday.

   A. $12 = 3b + 2$ **C.** $12 = 2b + 3$

   B. $12 = 3 - 2b$ **D.** $12 = \frac{b}{3} + 2$ 1. _____

2. The difference between two-thirds of a number and 4 is -92.

   F. $\frac{2}{3}n - 4 = -92$ **H.** $4n - \frac{2}{3} = -92$

   G. $\frac{2}{3} - 4n = -92$ **I.** $-\frac{2}{3}n + 4 = -92$ 2. _____

3. Negative 6 times the sum of a number and 4 is 2.

   A. $-6n + 4 = 2$ **C.** $-6 + 4n = 2$

   B. $-6(n + 4) = 2$ **D.** $-6n - 4 = 2$ 3. _____

Solve each equation.

4. $-2.17 = 0.35r$

   F. 6.2 **H.** -7.6

   G. all real numbers   **I.** -6.2 4. _____

5. $2\frac{2}{5}w = 21\frac{3}{5}$

   A. -9 **B.** 5 **C.** null set   **D.** 9 5. _____

6. $-25 = \frac{1}{3}n - 10$

   F. null set   **G.** 45 **H.** -15 **I.** -45 6. _____

7. $4 - 5y = -16$

   A. -5 **C.** 5

   B. 4 **D.** all real numbers   7. _____

8. $-17 = -7c + 4$

   F. $\frac{7}{13}$ **H.** 3

   G. $\frac{13}{7}$ **I.** all real numbers   8. _____

9. $\frac{x + 5}{4} = -4$

   A. null set   **B.** 21 **C.** -21 **D.** -36 9. _____

Test, Form 2A *(continued)*

10. Elyse wants to buy a new softball glove that costs $46.50. She has $15 and plans to save $5.25 each week. How many weeks will it take her to save the money?

    F. 9 weeks   **G.** 8 weeks   **H.** 7 weeks   **I.** 6 weeks   **10.** _____

11. To catch an 8:30 A.M. bus, Kendra needs 45 minutes to shower and dress, 20 minutes for breakfast, and 10 minutes to walk to the bus stop. To catch the bus, what is the latest time she should wake up?

    A. 6:45 A.M.   **B.** 7:05 A.M.   **C.** 7:15 A.M.   **D.** 7:25 A.M.   **11.** _____

Solve each equation.

12. $-5x = -40 + 3x$

    F. 20   **H.** -5

    G. 5   **I.** all real numbers   **12.** _____

13. $\frac{3}{4}(x - 16) = -2(x - 3) + 4$

    A. null set   **B.** 8   **C.** 4   **D.** -4 **13.** _____

14. $-7b - 3 = -3b + 5$

    F. -2 **G.** 2   **H.** -5 **I.** null set   **14.** _____

15. $-2(y - 4) = 20 - 2y - 12$

    A. 4   **C.** -4

    B. all real numbers   **D.** -12 **15.** _____

16. $2(v - 4) - 10 = -2(-1 + 4v)$ **16.** _____

17. Mabel scored 19 points more on her pre-algebra test than Nancy. Phoebe scored 10 points less on her pre-algebra test than Nancy. If Phoebe scored 23 points, how many points did Mabel score?   **17.** _____

18. The figures below show sketches of Earl's and Dylan's flower gardens. If the perimeter of each of their gardens is the same, what is the length and width of Earl's garden?   **18.** _____
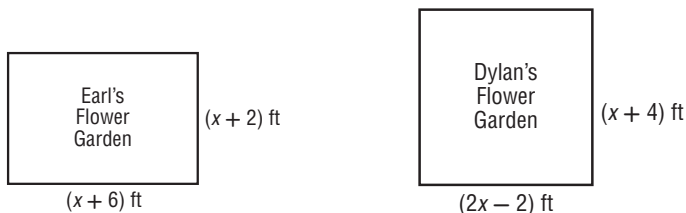
Earl's Flower Garden $(x + 2)$ ft   Dylan's Flower Garden $(x + 4)$ ft

$(x + 6)$ ft $(2x - 2)$ ft

Test, Form 2B

Write the letter for the correct answer in the blank at the right of each question.

Translate each sentence into an equation.

1. 7 berries are 5 less than twice the number of berries Mickey had for lunch.

   A. $7 = 5 - 2m$ **C.** $7 = 2m - 5$

   B. $5 = 2m - 7$ **D.** $12 = \dfrac{m}{2}$ 1. _____

2. The difference between three-fifths of a number and 7 is -36.

   F. $-\dfrac{3}{5}n + 7 = -36$ **H.** $7n - \dfrac{3}{5} = -36$

   G. $\dfrac{3}{5} - 7n = -36$ **I.** $\dfrac{3}{5}n - 7 = -36$ 2. _____

3. Negative 4 times the difference of a number and 7 is 12.

   A. $-4 + 7n = 12$ **C.** $-4n + 7 = 12$

   B. $-4n - 7 = 12$ **D.** $-4(n - 7) = 12$ 3. _____

Solve each equation.

4. $-2.73 = -0.42r$

   F. 6.5   **G.** 7.2   **H.** null set   **I.** -6.5 4. _____

5. $1\dfrac{7}{8}w = -11\dfrac{1}{4}$

   A. -6 **B.** 6   **C.** null set   **D.** 10   5. _____

6. $-17 = \dfrac{1}{5}n - 20$

   F. 18   **H.** 15

   G. all real numbers   **I.** -15 6. _____

7. $18 - 4d = 34$

   A. -5 **C.** 5

   B. -4 **D.** all real numbers   7. _____

8. $47 = 3 - 6y$

   F. $-\dfrac{3}{22}$ **G.** $-\dfrac{22}{3}$ **H.** null set   **I.** $-\dfrac{25}{3}$ 8. _____

9. $\dfrac{x + 7}{2} = -10$

   A. all real numbers   **C.** 13

   B. 27   **D.** -27 9. _____

Test, Form 2B (continued)

10. Cameron wants to buy new lacrosse equipment that costs $75.25. She has $20 and plans to save $4.25 each week. How many weeks will it take her to save the money?

F. 14 weeks **G.** 13 weeks **H.** 12 weeks **I.** 11 weeks

10. _____

11. To go to dance class at 6:45 P.M. bus, Kelly needs 35 minutes to walk home from a friend's house, 30 minutes for dinner, and 20 minutes to drive to the class. To make class on time, what is the latest time she should leave her friend's house?

A. 4:20 P.M. **B.** 4:55 P.M. **C.** 5:20 P.M. **D.** 5:45 P.M.

11. _____

Solve each equation.

12. $-2y = 45 + 7y$

F. 20 **H.** -5

G. 5 **I.** all real numbers

12. _____

13. $\frac{2}{3}(p - 12) = -(2p - 1) + 7$

A. all real numbers **C.** -4

B. -6 **D.** 6

13. _____

14. $5g - 7 = -3g + 1$

F. -4 **G.** -1 **H.** 1 **I.** 4

14. _____

15. $-5(c - 2) = 20 - 5c + 10$

A. 4 **B.** null set **C.** 1 **D.** -1

15. _____

16. $5(m + 4) = -2(-4 - m) + 3$

16. _____

17. Gus has skydived 4 more times than Nico. Emma has skydived twice as many times as Nico. If Emma has skydived 16 times, how many times has Gus skydived?

17. _____

18. The sketches below show Cat's and Fred's driveways. If the perimeter of each of their driveways is the same, what is the length and width of Cat's driveway?

18. _____

Cat's Driveway: x ft (top), $(x + 25)$ ft (side)

Fred's Driveway: $(x + 10)$ ft (top), $2x$ ft (side)
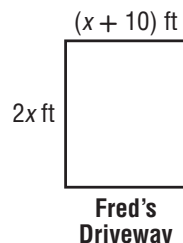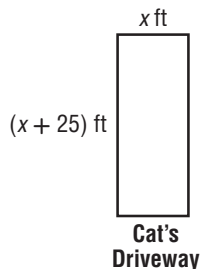
Test, Form 3A

1. Susan is 5 years older than her sister. The sum of their ages is 51. Define a variable. Then write an equation that could be used to find their ages.

1. _____

2. Two beakers plus their contents have a mass of 180.4 grams. The total mass of the contents is 56.8 grams. Write and solve an equation to find the mass of one beaker.

2. _____

3. At a concert, you purchase 3 T-shirts and a concert program for a total cost of $90. The program cost $15 and the T-shirts all cost the same. Write and solve an equation to find the cost of one T-shirt.

3. _____

Solve each equation.

4. $-1.4d = 0.7$

4. _____

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5. $1\frac{2}{3}m + 2 = 2\frac{1}{6}$

5. _____

6. $-14.2 = -4.2g + 6.8$

6. _____

7. $-w = -10 + 4w$

7. _____

8. $\frac{3}{4}n = -1\frac{3}{4}n - 18$

8. _____

9. $-3.6b - 7.2 = -12.7 - 6.1b$

9. _____

10. An online movie streaming plan charges an annual fee of $45 plus $2.50 per movie watched. Another plan has no annual fee but charges $3.75 per movie watched. For how many movies is the cost of the plans the same?

10. _____

Test, Form 3A *(continued)*

11. Find the value of x so that the polygons have the same perimeter

$x + 4$

$x - 2$

$x + 3$

$x + 5$

$x + 4$

11. _____
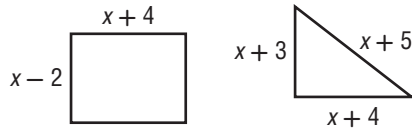
Solve each equation.

12. $-50 = -2(a + 3)$

12. _____

13. $4(x - 2) = 2(x - 4) + 2x$

13. _____

14. $5(y - 2) - 2 = 2(y + 1) - 5$

14. _____

15. $-4(p + 1) = -2(8 - 2p)$

15. _____

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16. The table shows the number of points scored by three players in last night's basketball game. If Gil and Darby scored the same number of points, how many points did Josiah score?

Player	Points
Josiah	x
Darby	$2x + 8$
Gil	$3x - 4$

16. _____

17. The table shows the number of tulip bulbs Chloe and Grady planted. If they each planted the same number of bulbs, how many did each plant?

Name	Number of Bulbs Planted
Chloe	$3(t + 1)$
Grady	$3(2t - 3)$

17. _____

18. Tony and some friends went to the movies. They bought 4 drinks and 2 tubs of popcorn and spent a total of $32.50 on the food. Each drink costs $3.50 less than a tub of popcorn.

a. Define a variable. Write an equation that can be used to find the cost of one tub of popcorn.

18a. _____

b. Solve the equation to find the cost of a tub of popcorn.

18b. _____

Test, Form 3B

1. Kenny has 9 more comic books than Bobbie. Together they have 95 comic books. Define a variable. Then write an equation that could be used to find the number of comic books they each have.

   1. _____

2. You and 3 friends pay $26.55 for a pizza and 4 of the same kind of drinks. The pizza cost $18.75. Write and solve an equation to find the cost of one drink.

   2. _____

3. Crystal bowled two games for a total score of 202. Her score for the second game was 30 points less than the score of her first game. Write and solve an equation to find her score for the second game.

   3. _____

Solve each equation.

4. $-0.7y = 9.1$

   4. _____

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5. $2\frac{1}{4}m + 3 = 4\frac{1}{8}$

   5. _____

6. $-19.2 = -3.6x + 2.4$

   6. _____

7. $-2a = 12 - 4a$

   7. _____

8. $-2\frac{2}{3}n + 21 = \frac{-1}{3}n$

   8. _____

9. $-2.3c - 6.6 = -12.2 - 3.9c$

   9. _____

10. An online movie streaming plan has no annual fee but charges $4.25 per movie watched. Another plan charges an annual fee of $36 plus $3.50 per movie watched. For how many movies is the cost of the plans the same?

    10. _____

Test, Form 3B   *(continued)*

11. Find the value of x so that the polygons have the same perimeter.

11. _____
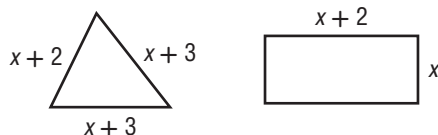
Solve each equation.

12. $-30 = -2(-n + 3)$

12. _____

13. $7(1 - p) = 2(1 - 3p)$

13. _____

14. $-3(q - 4) + 15 = -5(q - 7) - 10$

14. _____

15. $3(y - 2) + 15 = -3(y - 3) + 6y$

15. _____

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16. The table shows the number of hits made by three players in yesterday's softball game. If Mercedes and Kiaya had the same number of hits, how many hits did Evelyn have?

Player	Points
Evelyn	x
Mercedes	$3x - 1$
Kiaya	$4x - 2$

16. _____

17. The table shows the number of fish Callie and Jada each caught. If they caught the same number of fish, how many did each catch?

Name	Number of Fish Caught
Callie	$2(3t + 1)$
Jada	$4(2t - 1)$

17. _____

18. Bonnie and some friends went to an amusement park. They bought five of the same lunches and 3 desserts and spent a total of $60.25 on the food. Each dessert costs $5.25 less than one of the lunches.

   a. Define a variable. Write an equation that can be used to find the cost of lunch.

   18a. _____

   b. Solve the equation to find the cost of a lunch.

   18b. _____

Course 3 • Chapter 2 Equations in One Variable

Test, Form 1A

Write the letter for the correct answer in the blank at the right of each question.

1. What is the constant rate of change between the values of x and y in the table?

x	1	5	9	13
y	-6	-3	0	3

   A. $-\dfrac{4}{3}$ **B.** $-\dfrac{3}{4}$ **C.** $\dfrac{3}{4}$ **D.** $\dfrac{4}{3}$

   1. _____

2. What is the slope of the line that passes through the points $A(-2, -1)$ and $D(3, 5)$?

   F. $\dfrac{6}{5}$ **G.** $\dfrac{5}{6}$ **H.** $-\dfrac{5}{6}$ **I.** $-\dfrac{6}{5}$

   2. _____

3. What are three numbers that have a sum of 35 if the greatest number is 14 more than the least number?

   A. 6, 7, 20   **B.** 5, 11, 19   **C.** 10, 11, 24   **D.** 1, 15, 15

   3. _____

4. The costs of cookies at store A are shown in the graph. The cost y for x cookies at store B is represented by the equation $y = 0.30x$. Which of the following statements is true?
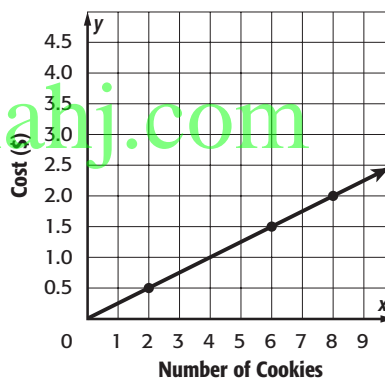
   F. The cookies at store A cost more.

   G. The cookies at store A cost $0.50 each.

   H. The cookies at store B cost $0.15 each

   I. The cookies at store B cost more.

   4. _____

5. What are the slope and y-intercept for the graph of $y - 7x = 10$?

   A. slope: 7, y-intercept: 10   **C.** slope: -7, y-intercept: 10

   B. slope: 7, y-intercept: -10 **D.** slope: -7, y-intercept: -10

   5. _____

6. Which is the equation in slope-intercept form for the graph of the line shown?
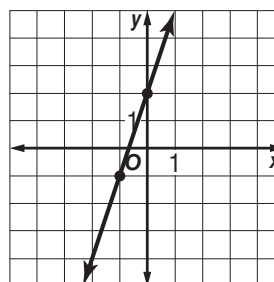
   F. $y = -3x - 2$ **H.** $y = 3x - 2$

   G. $y = -3x + 2$ **I.** $y = 3x + 2$

   6. _____

Test, Form 1A   (continued)

7. David is having his birthday party at a water park. The park charges $150 plus $10 per guest. The total cost of the party y can be represented by the equation $y = 10x + 150$. What does the slope represent?

A. the number of guests

B. the cost to rent the water park

C. the cost per guest

D. David's age

7. _____

8. Which equation, in point-slope form, passes through $(3, -1)$ and has a slope of 2?

F. $y + 1 = 2(x - 3)$ **H.** $y + 1 = 2(x + 3)$

G. $y - 1 = 2(x + 3)$ **I.** $y - 1 = 2(x - 3)$

8. _____

9. What are the x- and y-intercepts for the graph of $2x - 5y = 10$?

A. x-intercept: -5, y-intercept: 2

B. x-intercept: -5, y-intercept: -2

C. x-intercept: 5, y-intercept: -2

D. x-intercept: 5, y-intercept: 2

9. _____

10. Xavier has $20 more than Sara. Their combined money totals $90. Which system of equations represents this situation?

F. $x + s = 90$ **G.** $x + s = 90$ **H.** $x - s = 90$ **I.** $s - x = 90$
$\ s + x = 20$ $x - s = 20$ $s + s = 20$ $x - s = 20$

10. _____

11. Which of the following is the solution of the system of equations shown?

A. $(2, 2)$ **C.** $(2, -2)$

B. $(-2, 2)$ **D.** $(-2, -2)$

11. _____
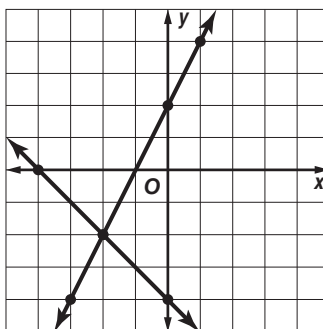
12. What is the solution of the system of equations?

$y = x - 4$

$y = -3x$

F. $(3, -1)$ **G.** $(-3, 1)$ **H.** $(-1, 3)$ **I.** $(1, -3)$

12. _____

13. What is the solution of the system of equations?

$y = x - 10$

$y = 2x + 5$

A. $(15, 25)$ **B.** $(15, -25)$ **C.** $(-15, -25)$ **D.** $(-15, 25)$

13. _____

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

1. What is the constant rate of change between the values of x and y in the table?

x	-3	-1	1	3
y	7	4	1	-2

  A. $\frac{3}{2}$ **B.** $\frac{2}{3}$ **C.** $-\frac{2}{3}$ **D.** $-\frac{3}{2}$ **1.** _____

2. What is the slope of the line that passes through the points $C(-2, 4)$ and $D(1, -1)$?

  F. $-\frac{5}{3}$ **G.** $-\frac{3}{5}$ **H.** $\frac{3}{5}$ **I.** $\frac{5}{3}$ **2.** _____

3. What are three numbers that have a sum of 44 if the greatest number is 11 more than the least?

  A. 1, 15, 12   **B.** 9, 14, 20   **C.** 8, 17, 19   **D.** 11, 16, 22   **3.** _____

4. The profits from selling T-shirts at store A are shown in the graph. The profit y for selling x T-shirts at store B is represented by the equation $y = 3.75x$. Which of the following statements is true?
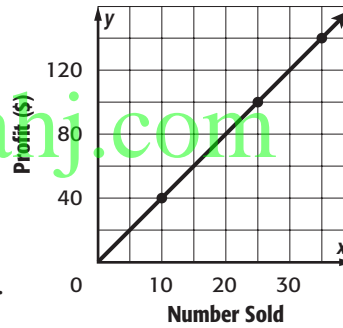
  F. Store A made a greater profit per T-shirt.

  G. Store B made a greater profit per T-shirt.

  H. Store A made a profit of $3.50 per T-shirt.

  I. Store B made a profit of $4 per T-shirt.

  4. _____

5. What are the slope and y-intercept for the graph of $y + 9x = -6$?

  A. slope: 9, y-intercept: -6 **C.** slope: -9, y-intercept: -6

  B. slope: -6, y-intercept: 9   **D.** slope: -6, y-intercept: -9

  5. _____

6. What is the equation in slope-intercept form for the graph of the line shown?
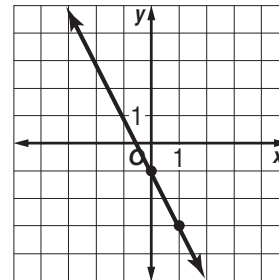
  F. $y = -2x - 1$ **H.** $y = 2x - 1$

  G. $y = -2x + 1$ **I.** $y = 2x + 1$

  6. _____

Test, Form 1B *(continued)*

7. Alice is having her birthday party at a game center. The center charges $100 plus $20 per guest. The total cost of the party y can be represented by the equation $y = 20x + 100$. What does the y-intercept represent?

   A. the number of guests

   B. the cost to rent the game center

   C. the cost per guest

   D. Alice's age

   7. _____

8. Which equation, in point-slope form, passes through $(-2, 4)$ and has a slope of 3?

   F. $y - 4 = 3(x - 2)$ **H.** $y + 4 = 3(x - 2)$

   G. $y - 4 = 3(x + 2)$ **I.** $y + 4 = 3(x + 2)$

   8. _____

9. What are the x- and y-intercepts for the graph of $3x - 2y = 6$?

   A. x-intercept: -2, y-intercept: 3

   B. x-intercept: -2, y-intercept: -3

   C. x-intercept: 2, y-intercept: -3

   D. x-intercept: 2, y-intercept: 3

   9. _____

10. Candace has $15 more than Amar. Their combined money totals $85. Which system of equations represents this situation?

    F. $c + a = 85$ **G.** $c + a = 85$ **H.** $c - a = 85$ **I.** $a - c = 85$
        $a + c = 15$ $c - a = 15$ $c + a = 15$ $c - a = 15$

    10. _____

11. Which of the following is the solution of the system of equations shown?

    A. $(-3, -4)$ **C.** $(3, 4)$

    B. $(-3, 4)$ **D.** $(3, -4)$

    11. _____
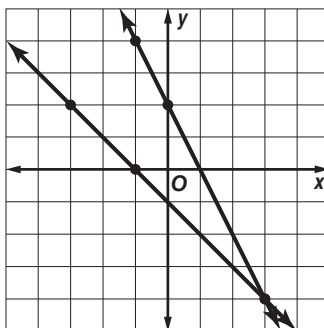
12. What is the solution of the system of equations below?

    $y = x + 2$

    $y = 3x$

    F. $(3, -1)$ **G.** $(-3, 1)$ **H.** $(1, 3)$ **I.** $(1, -3)$

    12. _____

13. What is the solution of the system of equations below?

    $y = 2x + 2$

    $y = 4x - 2$

    A. $(2, -6)$ **B.** $(-2, -6)$ **C.** $(-2, 6)$ **D.** $(2, 6)$

    13. _____

Test, Form 2A

Write the letter for the correct answer in the blank at the right of each question.

1. What is the slope (grade) of a road that rises 6 feet for every horizontal change of 100 feet?

    A. $\frac{1}{100}$ **B.** $\frac{1}{6}$ **C.** $\frac{3}{50}$ **D.** $\frac{50}{3}$ 1. _____

2. What is the constant rate of change between the two quantities in the table?

Time (minutes) (x)	15	30	45	60
Number of Pages Read (y)	10	20	30	40

    F. $\frac{30}{15}$ **G.** $\frac{15}{1}$ **H.** $\frac{2}{3}$ **I.** $\frac{1}{3}$ 2. _____

3. What is the slope of the line that passes through the points $E(-1, 4)$ and $F(2, 6)$?

    A. $-\frac{3}{2}$ **B.** $-\frac{2}{3}$ **C.** $\frac{2}{3}$ **D.** $\frac{3}{2}$ 3. _____

4. The cost of nails varies directly with the number of pounds bought. If 4 pounds of nails cost $11.60, what is the cost of 3.5 pounds?

    F. $5.80   **G.** $10.15   **H.** $11.60   **I.** $13.05   4. _____

5. What are the slope and y-intercept for the graph of $y - 4x = -2$.

    A. slope: -4, y-intercept: -2

    B. slope: 4, y-intercept: -2

    C. slope: -4, y-intercept: 2

    D. slope: 4, y-intercept: 2 5. _____

6. What is the equation in slope-intercept form for the graph shown?

    F. $y + x = -3$ **H.** $y - 3x = 1$

    G. $y = 3x + 1$ **I.** $y = -3x + 1$

    6. _____
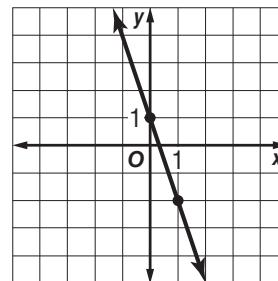
7. What are the x- and y-intercepts for the graph of $-3x + 5y = -15$?

    A. x-intercept: -5, y-intercept: -3

    B. x-intercept: -5, y-intercept: 3

    C. x-intercept: 5, y-intercept: 3

    D. x-intercept: 5, y-intercept: -3 7. _____

Test, Form 2A   *(continued)*

8. At store A, pencils are sold individually. The cost y of x pencils is represented by the equation $y = 0.55x$. The costs of pencils at store B are shown in the table.

Number of Pencils (x)	6	12	18	24
Cost (y)	$3.06	$6.12	$9.18	$12.24

Which of the following statements is true?

F. The pencils at store A cost more.

G. The pencils at store A cost $0.27 each.

H. The pencils at store B cost $0.30 each.

I. The pencils at store B cost more.

8. _____

9. What is the equation in slope-intercept form for the line that passes through the points $(-2, -1)$ and $(1, 5)$?

A. $y = 2x - 3$ **C.** $y = -2x - 3$

B. $y = 2x + 3$ **D.** $y = -2x + 3$

9. _____

10. What is the solution of the system of equations?

$y - 2x = -6$

$y - 4x = 0$

F. $(-3, -12)$ **G.** $(-3, 12)$ **H.** $(3, -12)$ **I.** $(3, 12)$

10. _____

11. Theo is renting two kinds of tables for his party. One type of table seats 4 people and the other seats 6 people. If 36 people will be at his party and he rents 7 tables, how many of each type of table does he rent?

11. _____

12. Geneva is saving for a new dress. She already has $20 saved and intends to save $7 each week. The equation for the amount of money y she has saved is $y = 7x + 20$, where x is the number of weeks. What do the slope and y-intercept represent?

12. _____

13. Solve the system by graphing.

$y = -2x + 3$

$y = -x - 1$

13. _____
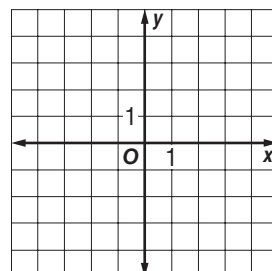
Test, Form 2B

Write the letter for the correct answer in the blank at the right of each question.

1. What is the slope of a ski run that rises 5 feet for every horizontal change of 20 feet?

   A. $\dfrac{1}{20}$ **B.** $\dfrac{1}{5}$ **C.** $\dfrac{1}{4}$ **D.** $\dfrac{20}{5}$ 1. _____

2. What is the constant rate of change between the two quantities in the table?

Number of Hours (x)	2	4	6	8
Snowfall (inches) (y)	3	6	9	12

   F. $\dfrac{3}{2}$ **G.** $\dfrac{2}{3}$ **H.** $\dfrac{-2}{3}$ **I.** $\dfrac{-3}{2}$ 2. _____

3. What is the slope of the line that passes through the points $E(5, 1)$ and $F(2,-7)$?

   A. $\dfrac{8}{3}$ **B.** $\dfrac{3}{8}$ **C.** $-\dfrac{3}{8}$ **D.** $-\dfrac{8}{3}$ 3. _____

4. The cost of peanuts varies directly with the number of pounds bought. If 3 pounds of peanuts cost $6.30, what is the cost of 4.5 pounds?

   F. $7.35   **G.** $8.40   **H.** $9.45   **I.** $10.05   4. _____

5. What are the slope and y-intercept for the graph of $y - 3x = -1$.

   A. slope: 1, y-intercept: 3   **C.** slope: -3, y-intercept: 1

   B. slope: 3, y-intercept: -1 **D.** slope: -1, y-intercept: -3 5. _____

6. What is the equation in slope-intercept form for graph shown?

   F. $y + x = -2$ **G.** $y - 2x = 1$

   H. $y = 2x + 1$ **I.** $y = -2x + 1$

   6. _____
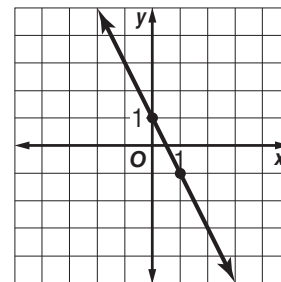
7. What are the x- and y-intercepts for the graph of $4x - 3y = -12$?

   A. x-intercept: -3, y-intercept: -4

   B. x-intercept: 3, y-intercept: 4

   C. x-intercept: 3, y-intercept: -4

   D. x-intercept: -3, y-intercept: 4   7. _____

Test, Form 2B   *(continued)*

8. At store A, rulers are sold individually. The cost y of x rulers is represented by the equation $y = 0.95x$. The costs of rulers at store B are shown in the table.

Number of Rulers (x)	5	10	15	20
Cost (y)	$4.60	$9.20	$13.80	$18.40

Which of the following statements is true?

F. The rulers at store A cost more.

G. The rulers at store A cost $0.90 each.

H. The rulers at store B cost $0.90 each.

I. The rulers at store B cost more.

8. _____

9. What is the equation in slope-intercept form for the line that passes through the points $(-1, 3)$ and $(-2, -3)$?

A. $y = 6x - 9$ **C.** $y = -6x - 9$

B. $y = 6x + 9$ **D.** $y = -6x + 9$

9. _____

10. What is the solution of the system of equations below?

$y + 2x = 2$

$y + 4x = 0$

F. $(1, -4)$ **G.** $(-1, -4)$ **H.** $(-1, 4)$ **I.** $(1, 4)$

10. _____

11. Georgia is renting two kinds of rowboats for the campout. One type of rowboat seats 3 people and the other seats 5 people. If 53 people will be at the campout and she rents 13 boats, how many of each type of boat does she rent?

11. _____

12. Homer is saving for a harmonica. He already has $15 saved and intends to save $4 each week. The equation for the amount of money y he has saved is $y = 4x + 15$, where x is the number of weeks. What do the slope and y-intercept represent?

12. _____

13. Solve the system by graphing.

$y = 3x + 4$

$y = x + 2$

13. _____
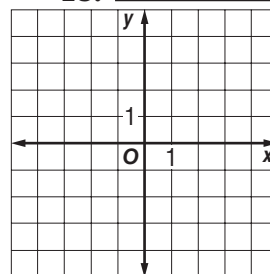
Test, Form 3A

1. Juanita is bringing the snacks for her daughter's soccer team. Each girl on the team will eat $\frac{1}{3}$ of an orange and drink one serving of juice or $\frac{1}{9}$ of the amount in a bottle. How many oranges and how many juice bottles will she need for all 18 girls?

1. _____

2. The top of Angie's ladder is resting against the side of her house 22 feet above the ground. If the base of the ladder is 5 feet from the house, what is the slope of the ladder?

2. _____

3. The framing gallery can frame 4 pictures per hour. Write and solve a direct variation equation to find how many pictures they can expect to frame in a $6\frac{1}{2}$ hour shift.

3. _____

4. Store A is offering four bottles of nail polish for $15. The costs for nail polish at Store B are shown in the table. Assume the cost for the nail polish varies directly with the number of bottles. At which store does the nail polish cost more? Explain.

4. _____

Number of Bottles	2	4	6
Cost ($)	7	14	21

5. State the slope and y-intercept for the graph of $-8x + y = -12$.

5. _____

6. Write an equation in slope-intercept form for the graph of the line shown.
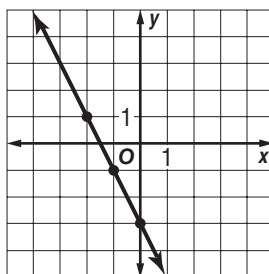
6. _____

7. An albatross is flying at a height of 300 feet and slowly descending at a rate of 73 feet per second. The equation for the height of the bird y is $y = 300 - 73x$, where x is the number of seconds in descent. What do the slope and y-intercept represent?

7. _____

Test, Form 3A   *(continued)*

8. State the *x*- and *y*-intercepts for the graph of $-2y - 5x = -20$.

8. _____

9. The table shows the items and their individual prices that Lakasha brought to donate for a charity. Altogether, she spent $420. This is represented by the function $20x + 70y = 420$.

	Hats	Coats
Cost ($)	$20	$70
Amount Bought	*x*	*y*

a. Graph the function.

9a.

**b.** Interpret the *x*- and *y*-intercepts.

9b. _____
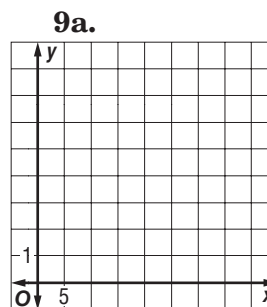
10. Solve the system of equations by graphing.

$$y = 3x - 2$$
$$x + y = 6$$

10. _____
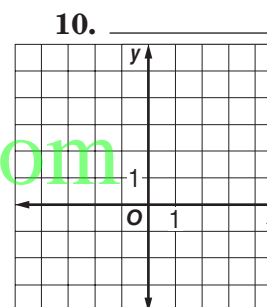
11. Logan asked his 20 coworkers whether they own a car or a truck. There were 6 more car owners than truck owners.

a. Write a system of equations that can be used to find out how many people own a car and how many people own a truck.

11a. _____

b. Solve the system.

11b. _____

12. Isaiah bought a total of 32 pieces of candy. He bought 3 times as many soft pieces of candy as he did hard pieces of candy.

a. Write a system of equations that represents the number of pieces of candy Isaiah bought.

12a. _____

b. Solve the system.

12b. _____

c. Interpret the solution.

12c. _____

Test, Form 3B

1. Tyrell wants to buy bagels and cream cheese for his 16 coworkers at the office. He expects that each worker will eat $1\frac{1}{2}$ bagels and 2 servings of cream cheese. The cream cheese comes in 4-serving containers. How many bagels and containers of cream cheese will he need?

1. _____

2. To get into her tree house, Annabeth rests a ladder against the tree. The top of the ladder is 13 feet above the ground. The base of the ladder is 3 from the tree. What is the slope of the ladder?

2. _____

3. Mrs. Potts can make 5 dozen ravioli in 1 hour. Write and solve a direct variation equation to find how many she can make in $2\frac{1}{2}$ hours.

3. _____

4. Store A is offering two tubes of lip gloss for $7. The costs for lip gloss at Store B are shown in the table. Assume the cost for the lip gloss varies directly with the number of tubes. At which store does the lip gloss cost more? Explain.

Number of Tubes	3	5	7
Cost ($)	12	20	28

4. _____

5. State the slope and y-intercept for the graph of $7x + y = 3$.

5. _____

6. Write an equation in slope-intercept form for the graph of the line shown.
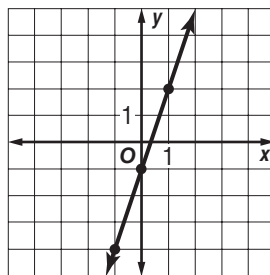
6. _____

7. An eagle is flying at a height of 275 feet and climbing at a rate of 65 feet per second. The equation for the height of the bird y is $y = 275 + 65x$, where x is the number of seconds in flight. What do the slope and y-intercept represent?

7. _____

Test, Form 3B   *(continued)*

8. State the *x*- and *y*-intercepts for the graph of $2y + 3x = -18$.

8. _____

9. The table shows the items and their individual prices that Amy bought for her party. Altogether, she spent \$18. This is represented by the function $2x + 3y = 18$.

9a.

	Streamers	Balloons
Cost (\$)	\$2	\$3
Amount Bought	*x*	*y*

a. Graph the function.

b. Interpret the *x*- and *y*-intercepts.

9b. _____
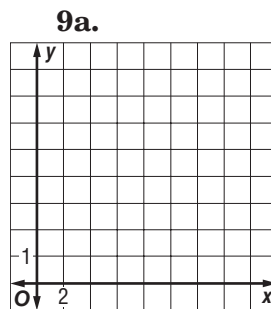
10. Solve the system of equations by graphing.

$$y = -4x + 3$$
$$-x + y = -2$$

10. _____
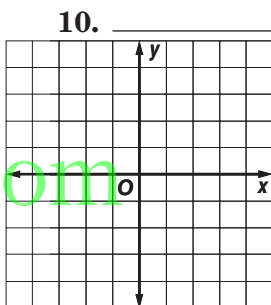
11. Cooghan asked his 19 classmates whether they were right or left-handed. There were 5 more right-handed classmates than left-handed classmates.

a. Write a system of equations that can be used to find out how many classmates were right or left handed.

11a. _____

b. Solve the system.

11b. _____

12. Gwen bought a total of 35 pieces of licorice. She bought 4 times as many red pieces as she did black pieces.

a. Write a system of equations that represents the number of pieces of each kind of licorice that Gwen bought.

12a. _____

b. Solve the system by substitution.

12b. _____

c. Interpret the solution.

12c. _____

Test, Form 1A

Write the letter for the correct answer in the blank at the right of each question.

1. Miguel and Molly are cyclists. The graph shows the distance Miguel biked one day. Molly biked at a rate of 0.15 mile per minute. Which statement about their speeds is true?
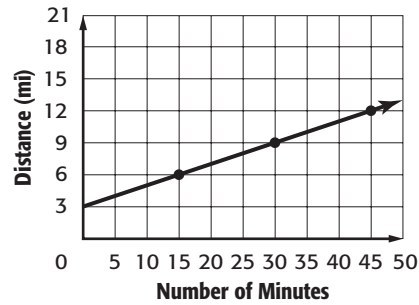
A. Molly's speed was the same as Miguel's speed.

B. Molly's speed was greater than Miguel's speed.

C. Miguel traveled 0.2 mile per minute.

D. Miguel traveled 5 miles per minute.

1. _____

2. What is $f(3)$ if $f(x) = -4x + 1$?

F. -44 **G.** -11 **H.** $\frac{1}{2}$ **I.** 13

2. _____

3. Which table represents a nonlinear function?

A.

x	-1	0	1	2
y	5	7	9	11

C.

x	-5	0	5	10
y	1	3	7	15

B.

x	5	9	13	17
y	-6	-4	-2	0

D.

x	6	4	2	0
y	1	5	9	13

3. _____

4. Which function is graphed at the right?

F. $y = \frac{1}{2}x + 2$

G. $y = x + 2$

H. $y = -\frac{1}{2}x + 2$

I. $y = -2x + 2$

4. _____
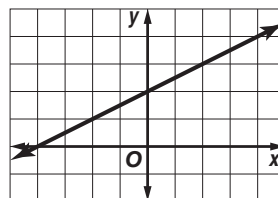
5. Which function matches the function table at the right?

A. $f(x) = x + 3$

B. $f(x) = 2x$

C. $f(x) = 4x - 1$

D. $f(x) = x + 2$

x	$f(x)$
-2	0
1	3
5	7

5. _____

6. Graphs that represent situations that may not have numerical values are called?

F. linear   **G.** nonlinear   **H.** qualitative   **I.** quadratic

6. _____

Test, Form 1A *(continued)*

7. A plant is a certain height. The height of the plant is measured for several weeks. The graph shows the height of the plant for each week. Which statement is true?
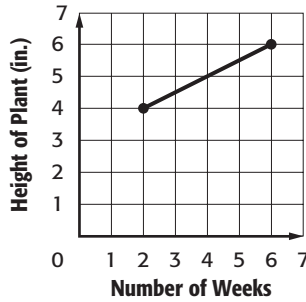
A. The plant grew 2 inches per week.

B. The plant grew 0.5 inch per week.

C. The initial height of the plant was 2 inches.

D. The initial height of the plant was 4 inches.

7. _____

8. What is $f(3)$ if $f(x) = 2x + 1$?

  F. 4   **G.** 7   **H.** 8   **I.** 11

8. _____

9. What is the domain of the relation $\{(-2, 4), (1, 3), (0, -4), (3, 2)\}$?

  A. $\{-2, 0, 1, 3\}$ **C.** $\{0, 1, 2, 4\}$

  B. $\{-4, -2, 2, 3\}$ **D.** $\{-4, 2, 3, 4\}$

9. _____

10. Which equation represents the graph at the right?

  F. $y = 2x^2 - 2$ **H.** $y = x^2 - 2$

  G. $y = -2x^2$ **I.** $y = -x^2$

10. _____
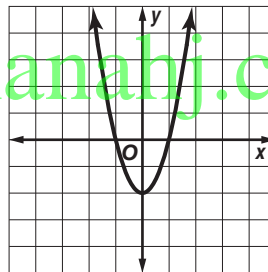
11. Student tickets cost \$6.50 each, and adult tickets cost \$9.50 each. Which equation can be used to find the total cost of c of any number of student tickets t?

  A. $t = 6.5c$ **C.** $t = 9.5c$

  B. $c = 6.5t$ **D.** $c = 9.5t$

11. _____

12. The graph shows the amount of food Dan's bobwhite quails eat each week. Which equation can be used to find the number of pounds y eaten after any number of weeks x?
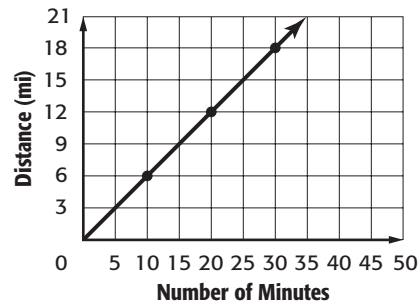
  F. $y = 150x$

  G. $y = 112x$

  H. $y = 37.5x$

  I. $y = 75x$
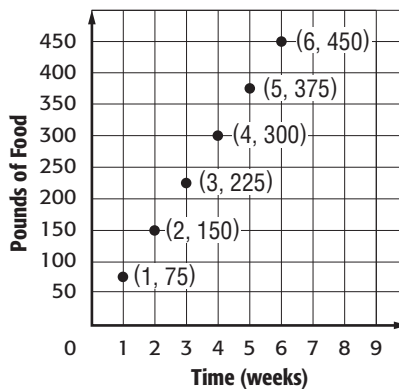
12. _____

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

1. The graph shows the distance a cheetah ran. A giraffe ran at a rate of 0.25 mile per minute. Which statement about their speeds is true?

   A. The cheetah traveled 0.6 mile per minute.

   B. The cheetah traveled 3 miles per minute.

   C. The cheetah was twice as fast as the giraffe.

   D. The cheetah and the giraffe traveled at the same rate.

   1. _____

2. What is $f(7)$ if $f(x) = -4x + 9$?

   F. -19 **G.** -4 **H.** 4 **I.** 37

   2. _____

3. Which table represents a linear function?

   A.

x	1	2	3	4
y	0	2	6	12

   C.

x	-3	-2	-1	0
y	5	3	1	-1

   B.

x	-2	0	2	4
y	4	2	1	$\frac{1}{2}$

   D.

x	-4	0	4	8
y	1	4	9	16

   3. _____

4. Which function is graphed at the right?

   F. $y = -\frac{3}{2}x - 2$ **H.** $y = -\frac{2}{3}x - 2$

   G. $y = \frac{3}{2}x - 2$ **I.** $y = \frac{2}{3}x - 2$

   4. _____
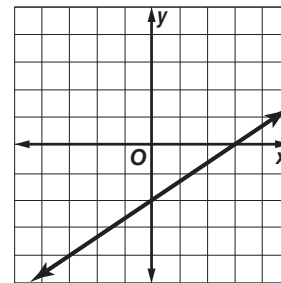
5. Which function matches the function table at the right?

   A. $f(x) = 4x - 2$ **C.** $f(x) = 2x + 4$

   B. $f(x) = 5x + 1$ **D.** $f(x) = 4x + 2$

x	$f(x)$
-3	-14
0	-2
3	10

   5. _____
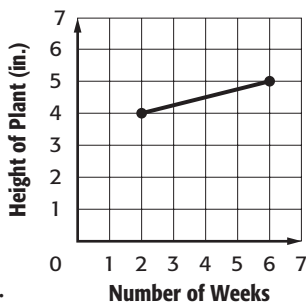
6. Graphs that represent situations that may not have numerical values are called?

   F. linear   **G.** nonlinear   **H.** quadratic   **I.** qualitative

   6. _____

Course 3 • Chapter 4 Functions

Test, Form 1B   *(continued)*

7. A plant is a certain height. The height of the plant is measured for several weeks. The graph shows the height of the plant for each week. Which statement is true?

A. The plant grew 1 inch per week.

B. The plant grew 0.75 inch per week.

C. The initial height of the plant was 4 inches.

D. The initial height of the plant was 3.5 inches.

7. _____

8. What is $f(4)$ if $f(x) = 2x - 2$?

F. 6   **G.** 10   **H.** 12   **I.** 14

8. _____

9. What is the domain of the relation $\{(-2, 4), (1, 3), (0, -4), (3, 2)\}$?

A. $\{0, 1, 2, 4\}$ **C.** $\{-2, 0, 1, 3\}$

B. $\{-4, -2, 2, 3\}$ **D.** $\{-4, 2, 3, 4\}$

9. _____

10. Which equation represents the graph at the right?

F. $y = x^2 + 3$ **H.** $y = -3x^2$

G. $y = -x^2$ **I.** $y = -x^2 + 3$
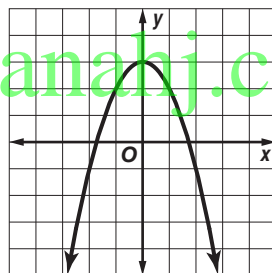
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10. _____

11. Student tickets cost \$5.75 each, and adult tickets cost \$8.50 each. Which equation can be used to find the total cost c of any number of adult tickets t?

A. $c = 8.5t$ **C.** $c = 5.75t$

B. $t = 8.5c$ **D.** $t = 5.75c$

11. _____

12. The graph shows the amount of food Ian's rabbits eat each week. Which equation can be used to find the number of pounds y eaten after any number of weeks x?
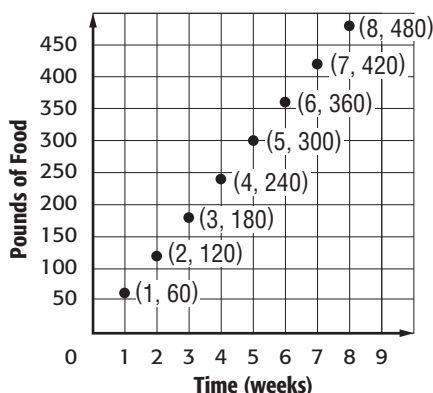
F. $y = 120x$

G. $y = 60x$

H. $y = 30x$

I. $y = 15x$

12. _____

Test, Form 2A

Write the letter for the correct answer in the blank at the right of each question.

1. Which ordered pair is *not* a point on the graph of $y = \frac{1}{2}x - 7$?

   A. $\left(1, -6\frac{1}{2}\right)$ **B.** $(-2, -8)$ **C.** $(0, -7)$ **D.** $(2, 8)$

   1. _____

2. What is $f(-2)$ if $f(x) = \frac{1}{2}x$?

   F. -2 **G.** -1 **H.** 0 **I.** 1

   2. _____

3. The graph at the right shows Jeremy's distance from home each hour he is on a car trip. How many miles will he be from home after 10 hours?
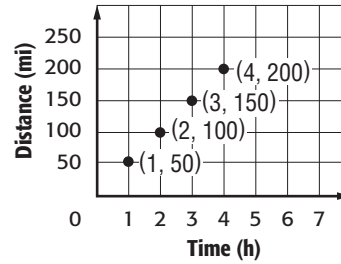
   A. 350 miles   **C.** 500 miles

   B. 400 miles   **D.** 550 miles

   3. _____

4. Which table represents a linear function?

F.

x	5	3	1	-1
y	6	8	10	12

H.

x	-2	0	2	4
y	0	1	3	6

G.

x	-3	-1	1	3
y	1	4	9	16

I.

x	7	4	1	-2
y	-1	-3	-6	-9

   4. _____

5. Juana's monthly cost of sending text messages can be represented by the function $y = 0.05x$, where y represents the total cost and x represents the number of text messages. The table shows Tanya's monthly cost of sending text messages. Which statement is *not* true?

Messages	Cost ($)
20	10
30	11
40	12
50	13

   A. Tanya's initial cost is greater than Juana's initial cost.

   B. Tanya pays more per text than Juana.

   C. Juana pays $7.50 for sending 150 text messages.

   D. Tanya pays $20 for sending 150 text messages.

   5. _____

6. Which of the following represents a nonlinear function?

   F. $y = 5x + 7$ **G.** $y = x^2$ **H.** $y = -2x$ **I.** $y = x$

   6. _____

Test, Form 2A   *(continued)*

7. Nate has a certain number of songs on his MP3 player. Each week, he plans to add 2 more songs. After 5 weeks, he had 25 songs on his MP3 player. Which statement is true?

　　A. Nate adds 5 songs on his MP3 player per week.

　　B. Nate adds 10 songs on his MP3 player per week.

　　C. The initial number of songs on Nate's MP3 player is 15.

　　D. The initial number of songs on Nate's MP3 player is 2.

7. _____

8. State the domain and range for the following relation.
$\{(-4, 4), (1, 2), (0, 3), (3, 2)\}$

8. _____

9. Complete the function table for $f(x) = -2x + 1$.

9.

x	$f(x)$
-2	
0	
1	
2	

For Exercises 10 and 11, consider the following situation.

The grocery store sells cantaloupes for $4.50 per pound.

10. Write a function to represent the situation.

10. _____

11. Is the function continuous or discrete? Explain.

11. _____

12. Graph $y = x^2 - 2$.

12.
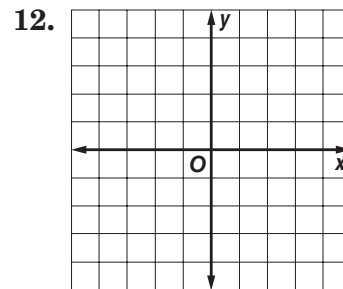
13. The value of a painting has increased steadily over time. Sketch a qualitative graph to represent this situation.
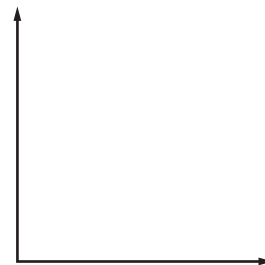
13. _____

Test, Form 2B

Write the letter for the correct answer in the blank at the right of each question.

1. Which ordered pair is *not* a point on the graph of $y = -5x + 2$?
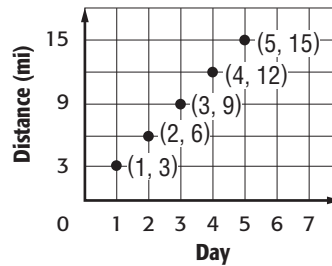
    A. $(-1, 6)$ **B.** $(0, 2)$ **C.** $(-2, 12)$ **D.** $(2, -8)$

1. _____

2. What is $f(-3)$ if $f(x) = \frac{1}{3}x$?

    F. 3 **G.** 1 **H.** -1 **I.** -3

2. _____

3. The graph at the right shows Lanna's total distance in miles for each day she is training for a marathon. What is her distance on day 10?

    A. 21 miles   **C.** 30 miles

    B. 27 miles   **D.** 33 miles

3. _____

4. Which table represents a linear function?

F.

x	5	2	−1	−4
y	6	7	10	12

H.

x	4	6	9	15
y	3	4	5	6

G.

x	−2	0	2	4
y	0	1	2	3

I.

x	7	4	1	−2
y	−1	−3	−6	−10

4. _____

5. Kayla's monthly cost of sending text messages can be represented by the function $y = 0.07x$, where y represents the total cost and x represents the number of text messages. The table shows Aubrey's monthly cost of sending text messages. Which statement is *not* true?

Messages	Cost ($)
30	18
40	19
50	20
60	21

    A. Kayla pays $10.50 for sending 150 text messages.

    B. Aubrey pays $30 for sending 150 text messages.

    C. Aubrey pays more per text than Kayla.

    D. Aubrey's initial cost is greater than Kayla's initial cost.

5. _____

6. Which of the following represents a nonlinear function?

    F. $y = 4x^2$ **G.** $y = x$ **H.** $y = -9x$ **I.** $y = 8x + 10$

6. _____

Test, Form 2B   *(continued)*

7. Roberto has a certain number of songs on his MP3 player. Each week, he plans to add 4 more songs. After 5 weeks, he had 40 songs on his MP3 player. Which statement is true?

   A. Roberto adds 5 songs on his MP3 player per week.

   B. Roberto adds 10 songs on his MP3 player per week.

   C. The initial number of songs on Roberto's MP3 player is 10.

   D. The initial number of songs on Roberto's MP3 player is 20.

7. _____

8. State the domain and range for the following relation.
$\{(4, -1), (3, 2), (0, -3), (1, 4)\}$

8. _____

9. Complete the function table for $f(x) = 3x + 2$.

9.

x	$f(x)$
-2	
-1	
0	
1	

For Exercises 10 and 11, consider the following situation.

The grocery store sells bacon for $5.30 per pound.

10. Write a function to represent the situation.

10. _____

11. Is the function continuous or discrete? Explain.

11. _____

12. Graph $y = -2x^2 + 4$.

12.
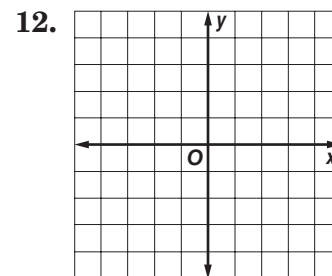
13. The value of a football card has increased steadily over time. Sketch a qualitative graph of the situation.
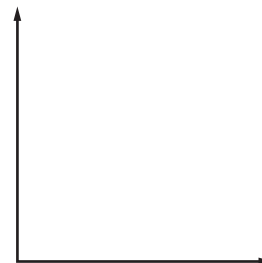
13. _____

Test, Form 3A

For Exercises 1–5, consider the following situation.

The deli in the grocery store gives each customer a free cup of coffee worth $1.50.
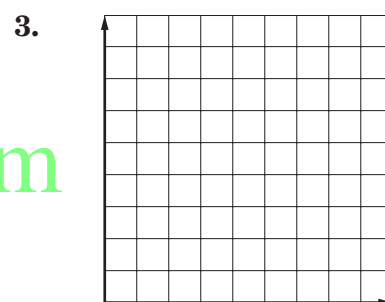
1. Write a function to represent the situation.

1. _____

2. Make a function table to find the total cost of the coffee if 5, 10, 15, or 20 customers come in.

2.

3. Graph the function.

3.

4. State the domain and range of the function.

4. _____

5. Is the function continuous or discrete? Explain.

5. _____

For Exercises 6 and 7, find each function value.

6. $f(-4)$ if $f(x) = 4x - 2$

6. _____

7. $f(9)$ if $f(x) = -6x - 1$

7. _____

Test, Form 3A   *(continued)*

8. A circle has a radius of r inches. The area of a circle is represented by the expression $3.14r^2$. The area of a circle is a function of the radius. Does this situation represent a linear or nonlinear function? Explain.

8. _____

For Exercises 9–11, consider the following situation.

The total cost of renting a carpet cleaner from Carpets Inc. is represented by the function $y = 20x + 15$, where x represents the number of days and y represents the total cost. The cost of renting a carpet cleaner from Clark Cleaners is shown in the table.

Number of Days	Cost ($)
2	60
3	85
4	110
5	135

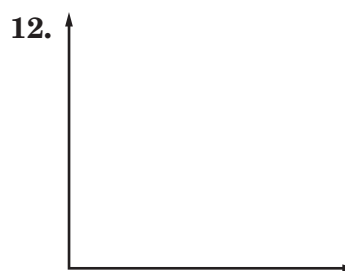**9.** Compare the functions' rates of change.

9. _____

10. Find and interpret the initial value of renting from Clark Cleaners.
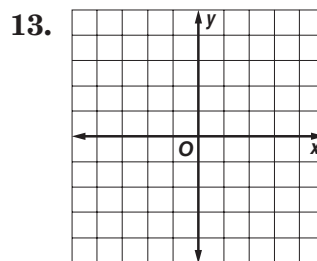
10. _____

11. Which company should you use if you rent the carpet cleaner for 6 days?

11. _____

12. Sketch a qualitative graph that represents a cup of hot coffee cooling down to room temperature quickly.

12.

13. Graph $y = -x^2 + 5$.

13.

Test, Form 3B

SCORE _____

For Exercises 1–5, consider the following situation.

Marylou buys bagels for a number of office staff each day. Each bagel costs $1.75.
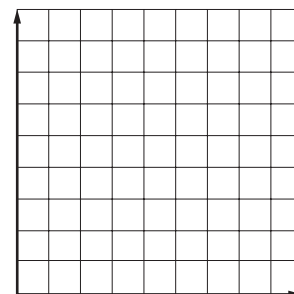
1. Write a function to represent the situation.

1. _____

2. Make a function table to find the total cost if 3, 5, 7, or 9 office workers want bagels.

2.

3. Graph the function.

3.

4. State the domain and range of the function.

4. _____

5. Is the function continuous or discrete? Explain.

5. _____

For Exercises 6 and 7, find each function value.

6. $f(7)$ if $f(x) = -3x + 2$

6. _____

7. $f(-8)$ if $f(x) = 4x - 5$

7. _____

Test, Form 3B   *(continued)*

8. A cube has a side length of s inches. The surface area of a cube is represented by the expression $6s^2$. The surface area of a cube is a function of the side length. Does this situation represent a linear or nonlinear function? Explain.

8. _____

For Exercises 9–11, consider the following situation.

The total cost of renting a lawn mower from Lawns Inc. is represented by the function $y = 10x + 15$, where x represents the number of hours and y represents the total cost. The cost of renting a lawn mower from Green Lawn is shown in the table.

Number of Hours	Cost ($)
2	38
3	47
4	56
5	65

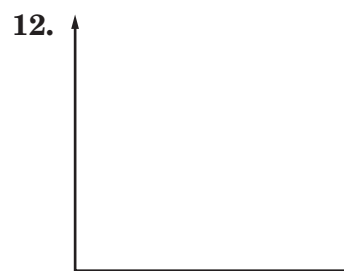**9.** Compare the functions' rates of change.

9. _____

10. Find and interpret the initial value of renting from Green Lawn.

10. _____

11. Which company should you use if you rent the lawn mower for 6 hours?

11. _____

12. Sketch a qualitative graph that represents a cup of soup quickly cooling down.

12.

13. Graph $y = -3x^2 + 2$.

13.