

# Standardized Test

For use after Chapter 1

## Multiple Choice

1. Which of the following integers are in order from least to greatest?

(A) 0, 2, -4, 6, -8  
(B) -7, -4, 1, 3, 11  
(C) 0, -8, -6, 7, 11  
(D) -15, -18, 0, 5, 13

2. Which step should be performed first when finding the sum of 17 and the product of 6 and 8?

(A)  $17 + 6$  (B)  $17 + 8$   
(C)  $6 \cdot 8$  (D)  $17 \cdot 6$

3. What is the value of the expression  $12 + 6 \cdot (13 - 9)^2 - 2$ ?

(A) 36 (B) 106 (C) 120 (D) 586

4. Which of the following is not equal to  $-|-15|$ ?

(A)  $-(-15)$  (B)  $-|15|$   
(C)  $-[-(-|-15|)]$  (D)  $-[-(-15)]$

5. Evaluate  $-71 + (-53) + 41 + (-17)$ .

(A) -182 (B) -100  
(C) 66 (D) 100

6. What is the value of  $-8 - (-11) + (-2) - 19$ ?

(A) -40 (B) -18  
(C) -14 (D) -2

7. Evaluate  $-b + 4ac$  when  $a = 2$ ,  $b = -5$ , and  $c = -8$ .

(A) -69 (B) -59  
(C) -5 (D) 69

8. What is the value of  $|-6| \cdot (-5)(7)$ ?

(A) -210 (B) -31  
(C) -29 (D) 210

9. Evaluate  $\frac{-15y}{x}$  when  $x = -9$  and  $y = -3$ .

(A) -45 (B) -5  
(C) 5 (D) 45

10. Simplify the expression  $3(4x - 5) - (8 - 3^2)$ .

(A)  $12x - 14$  (B)  $12x - 15$   
(C)  $12x - 30$  (D)  $12x - 40$

11. Which property does  $1999 \cdot 0 = 0$  represent?

(A) Closure property  
(B) Multiplicative identity property  
(C) Commutative property  
(D) Multiplication property of zero

12. Which of the following orders the integers from greatest to least?

(A) -12, 12, 5, -3, 3, 1  
(B) -7, -4, -1, 3, 5, 9  
(C) 15, 6, 2, -3, -4, -12  
(D) 13, -12, 9, 7, -6, 3

13. Which of the following is equivalent to  $5 + 7 + 13$ ?

(A)  $5 + (7 + 13)$   
(B)  $7 + 5 + 13$   
(C) both of the above  
(D) none of the above

# Standardized Test

For use after Chapter 1

14. Which of the following is equivalent to  $1 \div 2$ ?
- (A)  $2 \div 1$
  - (B)  $\frac{1}{2}$
  - (C) both of the above
  - (D) none of the above
15. The Forest Glen football team played a game last Friday night. They were 40 yards from their end zone. They received two 10 yard penalties moving them farther from their end zone. Which expression represents their distance from the end zone?
- (A)  $40 + 2(10)$
  - (B)  $40 + 10$
  - (C)  $2(40) + 10$
  - (D)  $2(40 + 10)$
16. What is the product  $(-1)(-3 \cdot 4 \cdot (-2))$ ?
- (A) -24
  - (B) -1
  - (C) -2
  - (D) 24
17. Tom filled up the 15 gallon gas tank in his car. He used 12 gallons but then put 10 more gallons in his car. How many gallons of gas are now in his gas tank?
- (A) 2 gallons
  - (B) 3 gallons
  - (C) 13 gallons
  - (D) 37 gallons
18. What is the value of  $1,000,000 + 0$  according to the identity property of addition?
- (A) 0
  - (B)  $(1,000,000 + 0)$
  - (C) 1,000,000
  - (D)  $0 + 1,000,000$
19. Which of the following could be the first step in simplifying the expression  $8[4 + 9(m - 2)]$ ?
- (A) Add 4 and 9
  - (B) Multiply 9 and  $(m - 2)$
  - (C) Add 8 and 4
  - (D) Subtract 2 from 9

## Short Response

20. Use the expression  $(12 - 2) \cdot (3^2 - 2 \cdot 3)$ .
- a. List, in order, the operations needed to simplify the expression.
  - b. Simplify the expression.

## Extended Response

21. A grandmother wants to buy each of her 7 grandchildren a pair of pants for \$36 and a shirt for \$24.
- a. Write an expression that could be used to find the total cost of the clothing.
  - b. How could you use mental math to find the amount of money the grandmother will need? *Explain* your reasoning.
  - c. Evaluate the expression. Identify any properties used.

# Standardized Test

For use after Chapter 2

1. Which pair of fractions are equivalent?

(A)  $\frac{6}{9}, \frac{13}{15}$  (B)  $\frac{7}{15}, \frac{20}{44}$   
(C)  $\frac{11}{25}, \frac{7}{16}$  (D)  $\frac{4}{6}, \frac{10}{15}$

2. Which fraction is in simplest form?

(A)  $\frac{6}{9}$  (B)  $\frac{12}{18}$  (C)  $\frac{35}{40}$  (D)  $\frac{15}{17}$

3. Which statement is true?

(A)  $\frac{14}{10} > 1\frac{24}{36}$  (B)  $-\frac{17}{25} > -\frac{3}{4}$   
(C)  $\frac{8}{13} < \frac{12}{25}$  (D)  $-\frac{3}{8} < -\frac{15}{32}$

4. You walk  $6\frac{2}{3}$  miles of a  $10\frac{1}{3}$  mile trek. How much farther do you have to walk?

(A)  $3\frac{1}{3}$  miles (B)  $3\frac{2}{3}$  miles  
(C)  $4\frac{2}{3}$  miles (D)  $4\frac{1}{3}$  miles

5. What is the sum  $\frac{5}{8} + \frac{7}{12} + \frac{1}{6}$ ?

(A)  $\frac{21}{24}$  (B)  $1\frac{1}{12}$   
(C)  $1\frac{1}{4}$  (D)  $1\frac{3}{8}$

6. Your uncle is cementing a patio. The patio is  $10\frac{3}{5}$  feet long and  $8\frac{3}{4}$  feet wide. What is the area of the patio?

(A)  $19\frac{7}{20}$  ft<sup>2</sup> (B)  $38\frac{7}{8}$  ft<sup>2</sup>  
(C)  $46\frac{3}{8}$  ft<sup>2</sup> (D)  $92\frac{3}{4}$  ft<sup>2</sup>

7. What is the quotient  $-\frac{5}{8} \div \frac{10}{13}$ ?

(A)  $-1\frac{12}{13}$  (B)  $-1\frac{6}{13}$   
(C)  $-\frac{13}{32}$  (D)  $-\frac{13}{16}$

8. Evaluate  $-\frac{7}{12} \div \frac{5}{8}$ .

(A)  $-1\frac{1}{14}$  (B)  $-\frac{14}{15}$  (C)  $\frac{14}{15}$  (D)  $1\frac{1}{14}$

9. At a baseball game,  $\frac{7}{35}$  of fans bought hot dogs. What is another way to express this number?

(A) 0.2 (B) 0.35  
(C) 0.5 (D) 0.7

10. Which fraction is greater than 0.58?

(A)  $\frac{14}{25}$  (B)  $\frac{7}{12}$  (C)  $\frac{11}{20}$  (D)  $\frac{4}{7}$

11. Which fraction is equivalent to  $\frac{4}{64}$ ?

(A)  $\frac{1}{32}$  (B)  $\frac{1}{16}$   
(C)  $\frac{2}{16}$  (D)  $\frac{4}{32}$

12. What is the sum  $\frac{8}{11} + \frac{1}{2} + \frac{3}{4}$ ?

(A)  $\frac{12}{17}$  (B)  $\frac{29}{17}$   
(C)  $1\frac{43}{44}$  (D) 2

13. What is the product  $\frac{2}{5} \cdot \left(-\frac{3}{7}\right) \cdot \left(-\frac{2}{3}\right)$ ?

(A)  $-\frac{4}{35}$  (B)  $-\frac{3}{15}$   
(C)  $\frac{4}{35}$  (D)  $\frac{12}{15}$

14. What is the difference  $\frac{11}{12} - \frac{2}{3}$ ?

(A)  $-\frac{1}{4}$  (B)  $\frac{1}{4}$   
(C)  $\frac{3}{5}$  (D)  $\frac{3}{4}$

# Standardized Test

For use after Chapter 2

15. Write the fraction  $2\frac{11}{16}$  as a decimal.

(A) 2.11 (B)  $2.1\bar{6}$   
(C) 2.625 (D) 2.6875

16. Simplify the algebraic expression  $\frac{-3x^3y^2}{27xy^4}$ .

(A)  $\frac{-x^3}{9y^2}$  (B)  $\frac{-x^2}{9y^2}$   
(C)  $\frac{x^3}{24y^2}$  (D)  $\frac{24x^2}{y^2}$

17. Which shows the following fractions in order from least to greatest  $-\frac{7}{6}, \frac{3}{4}, \frac{7}{8}, -\frac{7}{8}$ ?

(A)  $-\frac{7}{6}, \frac{3}{4}, \frac{7}{8}, -\frac{7}{8}$   
(B)  $\frac{3}{4}, -\frac{7}{6}, -\frac{7}{8}, \frac{7}{8}$   
(C)  $-\frac{7}{6}, -\frac{7}{8}, \frac{3}{4}, \frac{7}{8}$   
(D)  $\frac{7}{8}, \frac{3}{4}, -\frac{7}{8}, -\frac{7}{6}$

18. What is  $\frac{148}{12}$  in its simplest form?

(A)  $\frac{3}{37}$  (B)  $\frac{37}{3}$   
(C)  $12\frac{1}{3}$  (D)  $\frac{74}{6}$

19. Choose the fraction equivalent to 0.125 in its simplest form.

(A)  $\frac{125}{1000}$  (B)  $\frac{25}{200}$   
(C)  $\frac{1}{8}$  (D)  $\frac{125}{100}$

20. The Ruby Glen hockey team played half of their games at home and half of their games away. They won  $\frac{5}{6}$  of their home games and  $\frac{2}{3}$  of their away games. What fraction of the total games did they win?

(A)  $\frac{2}{3}$  (B)  $\frac{3}{4}$   
(C)  $\frac{5}{6}$  (D)  $\frac{9}{6}$

## Short Response

21. For the expression  $\frac{1}{6} + \frac{2}{15} + \frac{3}{10}$

- Find the least common denominator for these fractions.
- Express each fraction using the LCD.
- Find the sum.

## Extended Response

22. Bryony and her two friends, Maite and Paulo, are each having a party this Saturday. Bryony and Maite will each have 4 piñatas at their parties, but Paulo will have 5. Bryony will have 22 guests, Maite will have 19, and Paulo will have 29.

- What fraction of the total piñatas will be used at Bryony's party?
- What fraction of the total piñatas will be used at Maite's party?
- What fraction of the total piñatas will be used at Paulo's party?
- Whose guests will have the most piñata prizes per person? *Explain your reasoning.*

# Standardized Test

For use after Chapter 3

## Multiple Choice

1. What number is 65% of 74?

(A) 48.1 (B) 63.2  
(C) 87.8 (D) 113.8

2. Which is equal to 0.025?

(A) 0.25% (B)  $\frac{1}{400}$   
(C)  $\frac{3}{120}$  (D) 2.5%

3. There were 150 blackbirds in a field on Monday. On Tuesday, there were 28% more. How many blackbirds were there in the field on Tuesday?

(A) 42 (B) 178  
(C) 192 (D) 258

4. You and a friend both have \$100 to invest. You put your money in an account that pays 5% interest compounded annually. Your friend puts his money in an account that pays 5% simple annual interest. How much more money will you have than your friend after 4 years?

(A) \$0 (B) \$1.00  
(C) \$1.55 (D) \$21.55

5. Find the difference  $3.08 - 2.165$ .

(A) 0.843 (B) 0.915  
(C) 1.085 (D) 5.245

6. For 3 days, rain accumulations were 1.36 inches, 2.05 inches, and 1.7 inches. What was the rain total by the end of the third day?

(A) 3.58 inches (B) 4.48 inches  
(C) 5.11 inches (D) 5.56 inches

7. Find the quotient  $2.36 \div 2.95$ .

(A) 0.59 (B) 0.8  
(C) 1.25 (D) 6.962

8. If a simple interest account that started with \$1100 had an interest rate of 1.1% annually, how much would it have in 5 years?

(A) \$605 (B) \$1105.50  
(C) \$1160.50 (D) \$1705

9. You put \$1500 in an account that earns 3.6% interest compounded annually. Which expression could be used to find your balance in 36 months?

(A)  $1500(1.036)^3$  (B)  $1500(1.036)^{36}$   
(C)  $1500(3.6)^3$  (D)  $3.6(1500)^3$

10. Which is the least number from the following group:  $-1.32$ ,  $-1\frac{1}{3}$ ,  $1.001$ ,  $-1.01$ ?

(A)  $-1.32$  (B)  $-1\frac{1}{3}$   
(C)  $1.001$  (D)  $-1.01$

11. Convert 45% to a fraction.

(A)  $\frac{9}{20}$  (B)  $\frac{4}{5}$   
(C)  $\frac{5}{4}$  (D)  $\frac{20}{9}$

12. Convert 812% to a decimal.

(A) 0.812 (B) 8.12  
(C) 81.2 (D) 812.0

13. Convert  $\frac{5}{20}$  to a percent.

(A) 5% (B) 20%  
(C) 25% (D) 400%

# Standardized Test

For use after Chapter 3

14. Order the following numbers from least to greatest:  $\frac{3}{5}$ , 12%, 0.65,  $\frac{7}{20}$ .
- (A) 12%,  $\frac{7}{20}$ ,  $\frac{3}{5}$ , 0.65      (B) 0.65,  $\frac{7}{20}$ ,  $\frac{3}{5}$ , 12%
- (C) 0.65,  $\frac{3}{5}$ ,  $\frac{7}{20}$ , 12%      (D) 12%,  $\frac{7}{20}$ , 0.65,  $\frac{3}{5}$
15. Which of the following numbers is the greatest: 0.093, 0.123, 0.0509, or 0.12?
- (A) 0.093      (B) 0.123
- (C) 0.0509      (D) 0.12
16. Find the product  $0.12 \cdot 0.11$ .
- (A) 0.00132      (B) 0.0132
- (C) 0.132      (D) 132
17. A store buys used CDs for \$4.50 each and then sells them for \$8.00 each. What is the percent markup?
- (A) 3.5%      (B) 4%
- (C) 56.25%      (D) 77. $\bar{7}$ %
18. Find the quotient  $0.48 \div 0.04$ .
- (A) 0.0192      (B) 0.192
- (C) 1.2      (D) 12
19. Cao bought a pair of boots that were on sale for 20% off of the original price. How much did the boots cost if they were originally \$40?
- (A) \$32      (B) \$50
- (C) \$60      (D) \$100

## Short Response

20. You buy a computer game that was \$55 before being marked up by 6%, and then going on sale for 20% off.
- a. What is the cost of the game after the markup but before the sale?
- b. What is the sale price paid for the computer game? *Justify* your response.

## Extended Response

21. A camping resort had 3120 camping sites rented in 2000. In 2001, they rented 2886 sites, and in 2002, they rented 3320 sites.
- a. What was the percent change from 2000 to 2001? *Justify* your response.
- b. What was the percent change from 2001 to 2002? *Justify* your response.
- c. Between what two years was the greatest percent change? *Explain* your response.
- d. What was the overall percent change from 2000 to 2002? *Justify* your response.

# Standardized Test

For use after Chapter 4

## Multiple Choice

1. Approximate  $\sqrt{235}$  to the nearest whole number.

(A) 14      (B) 15      (C) 16      (D) 17

2. Write 0.0000001 as a power of 10.

(A)  $-10^7$       (B)  $-10^6$   
(C)  $10^{-7}$       (D)  $10^{-6}$

3. The area of a square rug is 196 square feet. What is its perimeter?

(A) 28 feet      (B) 32 feet  
(C) 56 feet      (D) 98 feet

4. Which number is irrational?

(A)  $\frac{1}{3}$       (B)  $\sqrt{\frac{4}{25}}$   
(C)  $\sqrt{5}$       (D)  $\sqrt{9}$

5. Which statement is true?

(A)  $\sqrt{17} < 4$       (B)  $\sqrt{\frac{4}{16}} = \frac{1}{4}$   
(C)  $\sqrt{28} > 5$       (D)  $9 < \sqrt{78}$

6. Simplify  $5^2 m^3 n^{-2}$ .

(A)  $-10m^3 n^2$       (B)  $\frac{10m^3}{n^2}$   
(C)  $\frac{25m^3}{n^2}$       (D)  $\frac{25}{m^3 n^2}$

7. Write  $\frac{10x^{-9}}{-5y^{-2}}$  using only positive exponents.

(A)  $-\frac{2x^9}{y^2}$       (B)  $\frac{y^2}{2x^9}$   
(C)  $-2x^9 y^2$       (D)  $-\frac{2y^2}{x^9}$

8. Write 3,670,000,000 in scientific notation.

(A)  $3.67 \times 10^{-9}$       (B)  $367 \times 10^{-7}$   
(C)  $367 \times 10^7$       (D)  $3.67 \times 10^9$

9. Write  $10^{10}$  in standard form.

(A) 0.00000000001  
(B) 0.0000000001  
(C) 100  
(D) 10,000,000,000

10. Which of the following numbers is greatest?

(A)  $5\sqrt{36}$       (B)  $4\sqrt{64}$   
(C)  $3\sqrt{100}$       (D)  $2\sqrt{225}$

11. Write  $3.65 \times 10^{-5}$  in standard form.

(A) -365,000      (B) -182.5  
(C) 0.0000365      (D) 0.00365

12. Evaluate the expression  $4^{-3}$ .

(A) -64      (B) -12  
(C)  $-\frac{1}{64}$       (D)  $\frac{1}{64}$

13. Which of the following numbers is least?

(A)  $4\sqrt{31}$       (B)  $5\sqrt{27}$   
(C)  $6\sqrt{23}$       (D)  $7\sqrt{13}$

14. What is the product  $100 \cdot 0.00000001$ ?

(A)  $10^{-6}$       (B)  $10^{-5}$   
(C)  $10^{-4}$       (D)  $10^{-3}$

15. What is the number 0.00003003 in scientific notation?

(A)  $3.003 \times 10^{-6}$   
(B)  $3.003 \times 10^{-5}$   
(C)  $30.03 \times 10^{-6}$   
(D)  $300.3 \times 10^{-7}$

16. What is the simplified form of  $-7m^{-5}$ ?

(A)  $-\frac{7}{m^5}$       (B)  $-\frac{5}{m^7}$   
(C)  $\frac{7}{m^5}$       (D)  $35m$

# Standardized Test

For use after Chapter 4

17. Which square root is closest to 17?

(A)  $\sqrt{290}$  (B)  $\sqrt{301}$   
(C)  $\sqrt{313}$  (D)  $\sqrt{325}$

18. Simplify the expression  $(\sqrt{6})(\sqrt{14})(\sqrt{21})$ .

(A)  $2\sqrt{126}$  (B) 42  
(C) 126 (D) 294

19. Which expression is a *rational* number?

(A)  $(\sqrt{10})(\sqrt{70})$  (B)  $(\sqrt{12})(\sqrt{75})$   
(C)  $(\sqrt{14})(\sqrt{80})$  (D)  $(\sqrt{16})(\sqrt{85})$

20. The time  $t$  in seconds that it takes an object to fall  $x$  feet can be found using the equation  $t = \sqrt{\frac{x}{4}}$ . How long would it take for a ball to fall 72 feet?

(A)  $\frac{3\sqrt{2}}{2}$  seconds  
(B)  $3\sqrt{2}$  seconds  
(C) 18 seconds  
(D) 324 seconds

21. A person needed a net worth of  $5.0 \times 10^{10}$  dollars to be named the richest person in the world in 2006. What is this number written in standard form?

(A) \$500,000,000  
(B) \$5,000,000,000  
(C) \$50,000,000,000  
(D) \$500,000,000,000

## Short Response

22. The amount of a substance that exists after  $t$  double lives can be found by multiplying the initial quantity by the expression  $2^t$ .

- a. If the initial quantity of a substance is 0.35 grams, how much of the substance will there be after 3 double lives? *Justify* your response.  
b. A quantity of 22.4 grams of the substance in part (a) was found. How many double lives had occurred in order to produce this quantity? *Explain* your reasoning.

## Extended Response

23. Consider the sequence of numbers  $\{\sqrt{1}, \sqrt{2}, \sqrt{3}, \dots, \sqrt{99}, \sqrt{100}\}$ .
- a. How many of the numbers in the sequence are rational numbers? *Explain* your reasoning.  
b. How many of the numbers in the sequence are greater than 7? *Explain* your reasoning.  
c. List four numbers in the sequence that will become rational if they are multiplied by  $\sqrt{2}$ . *Explain* your reasoning.



# Standardized Test

For use after Chapter 5

## Multiple Choice

1. Simplify the expression  $3(4x - 5) - 8x - 4$ .

(A)  $-x - 6$  (B)  $4x - 9$   
(C)  $4x - 19$  (D)  $20x - 9$

2. Solve  $\frac{1}{3}x = -15$ .

(A)  $-45$  (B)  $-18$  (C)  $-12$  (D)  $-5$

3. Solve  $-27 = 4x + 9$ .

(A)  $-9$  (B)  $-4.5$  (C)  $9$  (D)  $72$

4. Which expression represents the statement "the sum of three times a number and 3?"

(A)  $3x + 3$  (B)  $3 \cdot 3 + x$   
(C)  $x(3 + 3)$  (D)  $3(x + 3)$

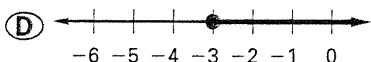
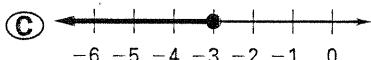
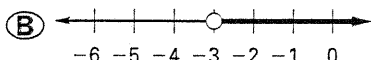
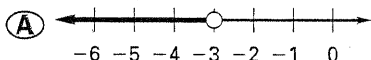
5. Which value of  $x$  makes the ratios  $\frac{5}{8}$  and  $\frac{x}{24}$  equivalent?

(A)  $3$  (B)  $15$  (C)  $16$  (D)  $20$

6. What value of  $m$  makes  $-\frac{1}{2}m \geq 6$  true?

(A)  $-13$  (B)  $-11$  (C)  $6$  (D)  $0$

7. Which is the correct graph of  $x > -3$ ?



8. What is the value of  $x$  in the inequality  $6x - 11 \leq -17$ ?

(A)  $x \leq -4\frac{2}{3}$  (B)  $x \leq -1$   
(C)  $x \geq -4\frac{2}{3}$  (D)  $x \geq -1$

9. Big Fish Boat Rental charges customers \$65 per hour to rent a boat. Customers are also required to pay a \$100 flat fee for a water safety course. If the Jordan Family paid \$327.50 for their boat rental and safety course, for how many hours did they rent the boat?

(A) 2.5 h (B) 3.5 h  
(C) 4 h (D) 5 h

10. Which expression is equivalent to  $3(4x + 5) + 3(x - 1)$ ?

(A)  $6(2x + 1) + (2x + 6)$   
(B)  $5(x + 1) + 2(5x + 5)$   
(C)  $12(x + 1) + (3x + 1)$   
(D)  $3(3x + 1) + 3(2x + 3)$

11. Which of the following values of  $x$  satisfies the inequality  $7x - 1 > 13$ ?

(A)  $0$  (B)  $1$   
(C)  $2$  (D)  $3$

12. Simplify the expression  $2(3x + 4) + 5x + 6$ .

(A)  $8x + 10$  (B)  $8x + 14$   
(C)  $11x + 10$  (D)  $11x + 14$

# Standardized Test

For use after Chapter 5

13. What is the value of  $x$  in the equation  $\frac{3}{4}x = -9$ ?
- (A) -36 (B) -12  
(C)  $-\frac{27}{4}$  (D) -6
14. A machine can pump 7 gallons of water in 12 minutes. How many gallons can the machine pump in 2 hours?
- (A) 30 gal (B) 48 gal  
(C) 56 gal (D) 70 gal
15. Which equation represents the following statements if  $h$  represents the number of hours?
- They charged \$35.00 an hour plus \$9.00 for parking. Our total bill was \$114.00.
- (A)  $h(35 + 9) = -114$   
(B)  $35h + 9 = -114$   
(C)  $h(35 + 9) = 114$   
(D)  $35h + 9 = 114$
16. What value of  $r$  makes the inequality  $-\frac{2}{5}r \geq 12$  true?
- (A) -40 (B) -7  
(C)  $12\frac{2}{5}$  (D) 30
17. What is the solution of the inequality  $19 \leq 5t + 13$ ?
- (A)  $t \leq -6$  (B)  $t \geq -6$   
(C)  $t \leq \frac{6}{5}$  (D)  $t \geq \frac{6}{5}$

## Short Response

18. A kennel owner is buying a new building. He wants the space for each dog run to be at least 96 square feet. The area reserved for the dog runs is 30 feet by 60 feet.
- What is the total area reserved for dog runs?
  - Write an inequality to show how many dog runs he can install that meet his requirements. Let  $n$  equal the number of dog runs.
  - Solve the inequality and explain your answer.

## Extended Response

19. Petra can paint 5 flowerpots in 3 hours. Her assistant can paint 7 flowerpots in 8 hours.
- Write and solve a proportion to show how many flowerpots Petra can paint in one hour.
  - Write and solve a proportion to show how many flowerpots Petra's assistant can paint in one hour.
  - Write and solve a proportion to find the number of flowerpots that Petra and her assistant can each paint in 24 hours.
  - How many flowerpots can Petra and her assistant paint together in one hour? Explain your reasoning.

# Standardized Test

For use after Chapter 6

## Multiple Choice

1. Which of the ordered pairs is a solution of the equation  $y = 7x - 13$ ?

(A)  $(-13, 0)$  (B)  $(-2, 1)$   
(C)  $(-1, -6)$  (D)  $(3, 8)$

2. Which is the best description of the graph of  $-7x + 2y = 42$ ?

(A) a vertical line  
(B) a horizontal line  
(C) a line slanted downward from left to right  
(D) a line slanted upward from left to right

3. What is the slope of the line passing through the points  $(-7, -5)$  and  $(-3, 1)$ ?

(A)  $\frac{2}{5}$  (B)  $\frac{1}{2}$   
(C)  $\frac{2}{3}$  (D)  $\frac{3}{2}$

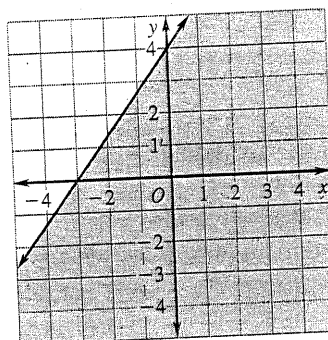
4. What is the slope of the line  $5x - 3y = 15$ ?

(A)  $-5$   
(B)  $-\frac{5}{3}$   
(C)  $\frac{5}{3}$   
(D)  $5$

5. What is the y-intercept of the line  $-3x + 4y = 12$ ?

(A)  $-3$   
(B)  $-\frac{3}{4}$   
(C)  $\frac{3}{4}$   
(D)  $3$

6. Which inequality is represented by the graph?



(A)  $y < \frac{4}{3}x + 4$  (B)  $y \leq \frac{4}{3}x + 4$   
(C)  $y > \frac{4}{3}x + 4$  (D)  $y \geq \frac{4}{3}x + 4$

7. Which of the following equations represents direct variation?

(A)  $x - y = 7$  (B)  $0.7y + 0.35x = 0$   
(C)  $\frac{3}{2}y = 3x - 6$  (D)  $2x + 4y = 6$

8. Which ordered pair is a solution to the following system of equations?

$$\begin{aligned} y &= 3x + 4 \\ -4x + y &= 2 \end{aligned}$$

(A)  $(-\frac{1}{2}, 0)$  (B)  $(1, 7)$   
(C)  $(2, 10)$  (D)  $(4, 2)$

9. What is the x-intercept and the y-intercept of the graph of  $3y - 7x = 42$ ?

(A) x-intercept =  $-6$ ; y-intercept =  $14$   
(B) x-intercept =  $6$ ; y-intercept =  $14$   
(C) x-intercept =  $14$ ; y-intercept =  $-6$   
(D) x-intercept =  $14$ ; y-intercept =  $6$

10. A line with slope  $\frac{3}{2}$  passes through the point  $(4, 6)$  and the point  $(10, y)$ . What is the value of  $y$ ?

(A)  $9$  (B)  $12$   
(C)  $15$  (D)  $21$

# Standardized Test

For use after Chapter 6

11. The line  $l$  passes through the points  $(3, 2)$  and  $(18, 12)$ . Which point is also on line  $l$ ?

(A)  $(21, 14)$  (B)  $(21, 15)$   
(C)  $(21, 18)$  (D)  $(21, 20)$

12. In the equation  $Cy + 3x = -4$ , the value of  $C$  is a constant. For what value of  $C$  will the graph of the equation be a line slanted upward from left to right?

(A)  $-1$  (B)  $0$   
(C)  $1$  (D)  $3$

13. What is the  $y$ -intercept of the graph of  $6x - 15y = 45$ ?

(A)  $-7.5$  (B)  $-3$   
(C)  $3$  (D)  $7.5$

14. Which equation represents a horizontal line?

(A)  $4x = 3$  (B)  $4y = 3$   
(C)  $4x = 4y$  (D)  $4x - 3y = 0$

15. Which ordered pair is a solution for the equation  $y = 4x + 3$ ?

(A)  $(0, -3)$   
(B)  $(1, 3)$   
(C)  $(2, 6)$   
(D)  $(3, 15)$

16. Which line has the same slope as

$$5y = 4x - 3?$$

(A)  $y = -\frac{5}{4}x + 3$  (B)  $y = -\frac{4}{5}x + 3$   
(C)  $y = \frac{4}{5}x$  (D)  $y = \frac{5}{4}x$

## Short Response

17. Some students raised \$320 for their school library. The library can buy books for \$16 each or DVDs for \$25 each. The inequality  $16x + 25y \leq 320$  models the situation, where  $x$  is the number of books and  $y$  is the number of DVDs.

- a. Graph the inequality.  
b. Explain how to use the graph to find the maximum number of DVDs the library can buy if it buys 14 books.

## Extended Response

18. Patrick keeps fish and turtles in an aquarium. Each fish weighs about  $f$  ounces and each turtle weighs about  $t$  ounces. Patrick uses a large net and collects 5 fish and 2 turtles weighing a combined 20 ounces. Patrick uses the net a second time and collects 4 fish and 3 turtles weighing a combined 23 ounces.

- a. Write an equation to represent the first weighing. *Explain* your answer.  
b. Write an equation to represent the second weighing. *Explain* your answer.  
c. Solve the system of equations.  
d. There are 100 fish and 20 turtles in the tank. What is their total weight? *Justify* your response.

# Cumulative Test

For use after Chapters 1-6

Evaluate the expression.

1.  $(7 + 8) \cdot 3 \div 5$

2.  $4 \cdot 6 - 18 \div 2$

3.  $(7 + 5)^2 \div 6$

4.  $5 \cdot [12 + (3 + 4)^2]$

Complete the statement with  $<$ ,  $>$ , or  $=$ .

5.  $-7$  \_\_\_\_\_  $-11$

6.  $0$  \_\_\_\_\_  $-14$

7.  $-11$  \_\_\_\_\_  $6$

8.  $|12|$  \_\_\_\_\_  $|-12|$

9.  $-|-1|$  \_\_\_\_\_  $-(-1)$

10.  $-|8|$  \_\_\_\_\_  $|-8|$

Find the sum or difference.

11.  $-76 + 51$

12.  $-256 + (-172)$

13.  $-87 - (-134)$

Find the product or quotient.

14.  $-15(8)$

15.  $-12(-6)(-4)$

16.  $\frac{-104}{-8}$

Evaluate the expression when  $x = -10$ ,  $y = 9$ , and  $z = -6$ .

17.  $2x + 3yz$

18.  $\frac{xy}{z}$

19.  $x - |y| + |-z|$

20.  $|y| + |-x| + z$

Write the prime factorization of the number.

21. 147

22. 112

Find the greatest common factor and the least common multiple.

23. 18, 24

24. 115, 20, 35

Complete the statement with  $<$ ,  $>$ , or  $=$ .

25.  $\frac{45}{14}$  \_\_\_\_\_  $\frac{24}{7}$

26.  $1\frac{7}{15}$  \_\_\_\_\_  $\frac{11}{8}$

Solve the proportion.

27.  $\frac{x}{14} = \frac{3}{21}$

28.  $\frac{40}{12} = \frac{10}{b}$

## Answers

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_

26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

# Cumulative Test

For use after Chapters 1–6

In Exercises 29–34, find the sum, difference, product, or quotient.

29.  $-\frac{7}{8} + \frac{3}{8}$

30.  $7\frac{2}{11} - 4\frac{6}{11}$

31.  $3\frac{2}{5} + 2\frac{4}{15}$

32.  $\frac{4}{15} \cdot \frac{5}{12}$

33.  $4\frac{2}{3} \cdot 3\frac{4}{7}$

34.  $3\frac{3}{8} \div 6$

35. Today you ran a mile in  $10\frac{3}{8}$  minutes. Yesterday it took you  $11\frac{5}{6}$  minutes. How much faster were you today?

Write the fraction as a decimal or write the decimal as a fraction.

36.  $\frac{8}{15}$

37. 0.04

38. 0.625

Find the sum, difference, product, or quotient.

39.  $17.18 - 12.749$

40.  $-0.062 + (-0.71)$

41.  $4.875 \div 0.78$

42.  $0.0035 \cdot 0.142$

In Exercises 43–48, complete the statement with  $<$ ,  $>$ , or  $=$ .

43.  $0.0123$  \_\_\_\_\_  $0.090$

44.  $9.12$  \_\_\_\_\_  $9.1\bar{2}$

45.  $\frac{5}{6}$  \_\_\_\_\_  $.56$

46.  $1.01$  \_\_\_\_\_  $101\%$

47.  $12\%$  \_\_\_\_\_  $\frac{1}{8}$

48.  $\frac{1}{50}$  \_\_\_\_\_  $\sqrt{0.4}$

49. At a zoo, 56% of the animals are mammals. The zoo has 300 animals in total. How many mammals does the zoo have?

In Exercises 50 and 51, write the percent as a decimal and as a fraction.

50. 42%

51. 210%

52. A store changed the price of a box of cereal from \$2.50 to \$3.00. Was this a percent increase or percent decrease? What was the percent change?

53. Dave and Rebekkah got married and received \$20,000. They decided to put it in an account with 6% interest compounded annually, and they would use it for a down payment on a house in a few years. How much will they have in the account in 5 years?

## Answers

29. \_\_\_\_\_  
30. \_\_\_\_\_  
31. \_\_\_\_\_  
32. \_\_\_\_\_  
33. \_\_\_\_\_  
34. \_\_\_\_\_  
35. \_\_\_\_\_  
36. \_\_\_\_\_  
37. \_\_\_\_\_  
38. \_\_\_\_\_  
39. \_\_\_\_\_  
40. \_\_\_\_\_  
41. \_\_\_\_\_  
42. \_\_\_\_\_  
43. \_\_\_\_\_  
44. \_\_\_\_\_  
45. \_\_\_\_\_  
46. \_\_\_\_\_  
47. \_\_\_\_\_  
48. \_\_\_\_\_  
49. \_\_\_\_\_  
50. \_\_\_\_\_  
51. \_\_\_\_\_  
52. \_\_\_\_\_  
53. \_\_\_\_\_

# Cumulative Test

For use after Chapters 1-6

In Exercises 54 and 55, write the number as a power of 10.

54. .00001

55. 10,000

56. A commercial airplane flew 2,080,000 miles before being replaced with a new plane. Write this number in scientific notation.

Evaluate the expression.

57.  $13^0$

58.  $7^{-2}$

Evaluate the expression when  $n = 2$ .

59.  $n^{-1}$

60.  $\frac{1}{2^{-n}}$

Simplify the expression.

61.  $\sqrt{80}$

62.  $\sqrt{6} \cdot \sqrt{24}$

Tell whether the number is *rational* or *irrational*. Explain your reasoning.

63.  $\frac{3}{5}$

64.  $\sqrt{21}$

65.  $\sqrt{\frac{4}{36}}$

Write the statement as a variable expression. Let  $x$  represent the variable.

66. the quotient of a number and 11

67. 27 decreased by a number

In Exercises 68 and 69, solve the equation.

68.  $4.52 + x = 3.6$

69.  $3w - 12 = 18$

70. Your mom bought a gallon of milk for \$3.65, and 1 pound of ham. Your grandmother bought a container of laundry detergent that cost \$5.75. They both spent the same amount of money. How much did the ham cost per pound?

## Answers

54. \_\_\_\_\_

55. \_\_\_\_\_

56. \_\_\_\_\_

57. \_\_\_\_\_

58. \_\_\_\_\_

59. \_\_\_\_\_

60. \_\_\_\_\_

61. \_\_\_\_\_

62. \_\_\_\_\_

63. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

64. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

65. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

66. \_\_\_\_\_

67. \_\_\_\_\_

68. \_\_\_\_\_

69. \_\_\_\_\_

70. \_\_\_\_\_

# Cumulative Test

For use after Chapters 1-6

**Simplify the expression by combining like terms.**

71.  $17x - 8y - 9x - 3y$

72.  $5(2x + 8) - 3x - (-8x) - 21$

**In Exercises 73 and 74, solve the equation.**

73.  $w + \frac{1}{6} = \frac{5}{6}$

74.  $21p = 231$

75. A tree is 110 inches tall. It grows 11 inches each year. Write and solve an equation to find how many years it will take for the tree to grow to 176 inches.

**Solve the inequality.**

76.  $-7.1 + w \geq -2.6$

77.  $4x < -124$

78.  $-2x > 32$

79.  $-\frac{1}{6}x \leq -1$

**In Exercises 80 and 81, solve the inequality.**

80.  $8k - 7 - 12k \leq 9$

81.  $12s - 72 > 30$

82. A landscaper needs at least 5000 cubic feet of topsoil to complete a job. He already has 3600 cubic feet of soil at the site. How many truck loads of soil should he have delivered if each truck load holds 600 cubic feet of soil?

83. Tell whether the equation  $y - 5x = 1$  represents direct variation.

**Find the slope of the line passing through the points.**

84.  $(7, -4), (11, -7)$

85.  $(-19, -14), (-15, -12)$

**Rewrite the equation in slope-intercept form. Then find the slope and y-intercept of the graph of the equation.**

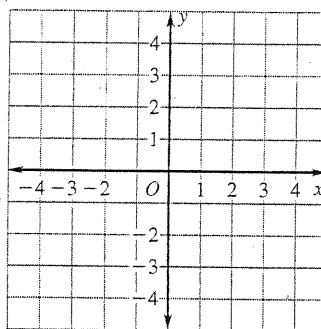
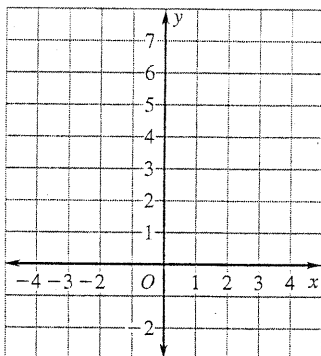
86.  $y - 6x = 12$

87.  $2y + 5x = 12$

**Graph the equation or inequality.**

88.  $y = -3x + 6$

89.  $y \leq \frac{1}{2}x$



## Answers

71. \_\_\_\_\_

72. \_\_\_\_\_

73. \_\_\_\_\_

74. \_\_\_\_\_

75. \_\_\_\_\_

76. \_\_\_\_\_

77. \_\_\_\_\_

78. \_\_\_\_\_

79. \_\_\_\_\_

80. \_\_\_\_\_

81. \_\_\_\_\_

82. \_\_\_\_\_

83. \_\_\_\_\_

84. \_\_\_\_\_

85. \_\_\_\_\_

86. \_\_\_\_\_

87. \_\_\_\_\_

88. See left.

89. See left.