Chapter 1 Practice Test (Algebra 1:A)

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. Salvador has saved 130 sand dollars and wants to give them away equally to $n$ friends. Write an expression to show how many sand dollars each of Salvador’s friends will receive. Then, find the total number of sand dollars each of Salvador’s friends will get if Salvador gives them to 10 friends.
   a. $130 - n$; 120 sand dollars  
   b. $130n$; 13 sand dollars  
   c. $\frac{130}{n}$; 13 sand dollars  
   d. $130 + n$; 120 sand dollars

2. Isabel reads 15 books from the library each month for $y$ months in a row. Write an expression to show how many books Isabel read in all. Then, find the number of books Isabel read if she read for 12 months.
   a. $15 + y$; 27 books  
   b. $15 - y$; 27 books  
   c. $15y$; 180 books  
   d. $\frac{15}{y}$; 180 books

3. Evaluate the expression $2m + n$ for $m = 7$ and $n = 9$.
   a. 25  
   b. 18  
   c. 23  
   d. 32

   a. $p = 22$  
   b. $p = -22$  
   c. $p = 10$  
   d. $p = -10$

5. Solve $-14 + s = 32$.
   a. $s = -46$  
   b. $s = 18$  
   c. $s = -18$  
   d. $s = 46$

6. A toy company's total payment for salaries for the first two months of 2005 is $21,894. Write and solve an equation to find the salaries for the second month if the first month’s salaries are $10,205.
   a. $10,205 + x = 21,894$  
      The salaries for the second month are $32,099.  
   b. $10,205 + x = 21,894$  
      The salaries for the second month are $11,689.  
   c. $10,205 + x = 21,894$  
      The salaries for the second month are $21,894.  
   d. $10,205 + x = 21,894$  
      The salaries for the second month are $10,947.
7. The range of a set of scores is 23, and the lowest score is 33. Write and solve an equation to find the highest score. \( \text{(Hint: In a data set, the range is the difference between the highest and the lowest values.)} \)

a. \( h - 33 = 2 \cdot 23 \)
   The highest score is 79.

b. \( h + 23 = 33 \)
   The highest score is 10.

c. \( h + 33 = 23 \)
   The highest score is -10.

d. \( h - 33 = 23 \)
   The highest score is 56.

8. Solve \( \frac{q}{5} = 41 \). Check your answer.

a. \( q = \frac{81}{5} \)

b. \( q = 36 \)

c. \( q = 205 \)

d. \( q = 46 \)

9. Solve \( \frac{2}{10} b = 99 \).

a. \( b = 20 \)

b. \( b = 495 \)

c. \( b = 10 \)

d. \( b = 99 \frac{2}{10} \)

10. The time between a flash of lightning and the sound of its thunder can be used to estimate the distance from a lightning strike. The distance from the strike is the number of seconds between seeing the flash and hearing the thunder divided by 5. Suppose you are 17 miles from a lightning strike. Write and solve an equation to find how many seconds there would be between the flash and thunder.

a. \( \frac{5}{t} = d \), so \( t \) is about 0.3 seconds.

b. \( t = \frac{d}{5} \), so \( t \) is about 3.4 seconds.

c. \( t - 5 = d \), so \( t \) is about 22 seconds.

d. \( \frac{t}{5} = d \), so \( t \) is about 85 seconds.

11. If \( 4x = 32 \), find the value of \( 35 - 5x \).

a. \(-5\)  

b. \(3\)

c. \(-3\)

d. \(5\)

12. Solve \( 44 = 14 - 2a \).

a. \( a = 15 \)

b. \( a = 29 \)

c. \( a = -29 \)

d. \( a = -15 \)

13. Solve \( \frac{f}{45} - \frac{2}{9} = \frac{2}{9} \).

a. \( f = 20 \)

b. \( f = -101 \)

c. \( f = -20 \)

d. \( f = 101 \)

14. Solve \( \frac{i}{70} - \frac{1}{7} = \frac{3}{5} \).

a. \( i = 56 \)

b. \( i = -88 \)

c. \( i = 88 \)

d. \( i = -56 \)
15. Solve $37b + 5 - 26b = 16$.
   a. $b = 1$
   b. $b = 11$
   c. $b = -1$
   d. $b = -11$

16. Devon pays $24.95 for her roller skates. After that she pays $3.95 for each visit to the roller rink. What is the greatest number of visits she can afford if the total amount she spends cannot be more than $76.30? 
   a. 3  
   b. 13  
   c. 51  
   d. 19

17. If $8y - 8 = 24$, find the value of $2y$.
   a. 2
   b. 8
   c. 11
   d. 24

18. The formula $p = nc - e$ gives the profit $p$ when a number of items $n$ are each sold at a cost $c$ and expenses $e$ are subtracted. If $p = 3750$, $n = 3000$, and $e = 900$, what is the value of $c$?
   a. 0.80
   b. 1.25
   c. 1.55
   d. 0.95

19. Solve $50q - 43 = 52q - 81$.
   a. $q = 38$
   b. $q = -19$
   c. $q = -38$
   d. $q = 19$

   a. $s = 52$
   b. $s = -52$
   c. $s = 4$
   d. $s = -4$

   a. $a = 5$
   b. $a = -\frac{3}{7}$
   c. $a = 3$
   d. $a = -\frac{5}{7}$

22. Solve $-3n - 5 - 4n = -10 - 7n + 15$. Tell whether the equation has infinitely many solutions or no solutions.
   a. Only one solution
   b. Infinitely many solutions
   c. Two solutions
   d. No solutions

23. A video store charges a monthly membership fee of $7.50, but the charge to rent each movie is only $1.00 per movie. Another store has no membership fee, but it costs $2.50 to rent each movie. How many movies need to be rented each month for the total fees to be the same from either company?
   a. 9 movies
   b. 5 movies
   c. 3 movies
   d. 7 movies

24. A professional cyclist is training for the Tour de France. What was his average speed in kilometers per hour if he rode the 194 kilometers from Laval to Blois in 4.6 hours? Use the formula $d = rt$, and round your answer to the nearest tenth.
   a. 115.8 kph
   b. 892.4 kph
c. 42.2 kph
   d. 189.4 kph
25. The formula for the resistance of a conductor with voltage $V$ and current $I$ is $r = \frac{V}{I}$. Solve for $V$.
   a. $I = Vr$
   b. $V = \frac{I}{r}$
   c. $V = \frac{I}{r}$
   d. $V = Ir$

26. The fuel for a chain saw is a mix of oil and gasoline. The ratio of ounces of oil to gallons of gasoline is 9:14. There are 112 gallons of gasoline. How many ounces of oil are there?
   a. 174.2 ounces
   b. 1.13 ounces
   c. 78 ounces
   d. 72 ounces

Short Answer

1. Give two ways to write the algebraic expression $y ÷ 24$ in words.

2. Give two ways to write the expression $22t$ in words.

3. Leah scored 6 points in the first half of the basketball game, and she scored $y$ points in the second half of the game. Write an expression to determine the number of points she scored in all. Then, find the number of points she scored in all if she scored 4 points in the second half of the game.

4. On a sunny day, a 3-foot red kangaroo casts a shadow that is 10 feet long. The shadow of a nearby eucalyptus tree is 30 feet long. Write and solve a proportion to find the height of the tree.

5. Find the value of $MN$ if $AB = 9$ cm, $BC = 7.2$ cm, and $LM = 12$ cm. 
   $ABCD \sim LMNO$

6. An architect built a scale model of a shopping mall. On the model, a circular fountain is 36 inches tall and 54 inches in diameter. If the actual fountain is to be 8 feet tall, what is its diameter?

7. A pipe is leaking at the rate of 40 fluid ounces per minute. Use dimensional analysis to find out how many gallons the pipe is leaking per hour.
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Answer Section

MULTIPLE CHOICE

1. C
2. C
3. C
4. A
5. D
6. B
7. D
8. C
9. B
10. D
11. A
12. D
13. A
14. A
15. A
16. B
17. B
18. C
19. D
20. C
21. B
22. D
23. B
24. C
25. D
26. D

SHORT ANSWER

1. the quotient of $y$ and 24
   $y$ divided by 24
2. the product of 22 and $t$
   22 multiplied by $t$
3. $6 + y$; 10 points
4. $\frac{\text{tree's shadow}}{\text{tree's height}} = \frac{\text{kangaroo's shadow}}{\text{kangaroo's height}}$; 9 feet
5. 9.6 cm
6. 12 ft
7. 18.75 gal/h