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

1. Where does the graph of \( y = -3x - 18 \) intersect the \( x \)-axis?
   
   \[ \text{A} \ (0, 6) \quad \text{B} \ (0, -6) \quad \text{C} \ (6, 0) \quad \text{D} \ (-6, 0) \]  
   
   1. \( \text{D} \)

2. Tickets to see a movie cost $5 for children and $8 for adults. The equation \( 5x + 8y = 80 \) represents the number of children \( (x) \) and adults \( (y) \) who can see the movie with $80. If no adults see the movie, how many children can see the movie with $80?
   
   \[ \text{F} \ 6 \quad \text{G} \ 10 \quad \text{H} \ 13 \quad \text{J} \ 16 \]  
   
   2. \( \text{J} \)

For Questions 3–5, find the slope of each line described.

3. the line through \((3, 7)\) and \((-1, 4)\)
   
   \[ \text{A} \ \frac{4}{3} \quad \text{B} \ \frac{3}{4} \quad \text{C} \ \frac{11}{2} \quad \text{D} \ \frac{2}{11} \]  
   
   3. \( \text{B} \)

4. the line through \((-3, 2)\) and \((6, 2)\)
   
   \[ \text{F} \ \frac{4}{9} \quad \text{G} \ \frac{4}{3} \quad \text{H} \ 0 \quad \text{J} \ \text{undefined} \]  
   
   4. \( \text{H} \)

5. a vertical line
   
   \[ \text{A} \ 1 \quad \text{B} \ 0 \quad \text{C} \ -1 \quad \text{D} \ \text{undefined} \]  
   
   5. \( \text{D} \)

6. Which graph has a slope of \(-3\)?
   
   \[ \text{F} \quad \text{G} \quad \text{H} \quad \text{J} \]  
   
   6. \( \text{J} \)

7. COMMUNICATION In 1996, there were 171 area codes in the United States. In 2007, there were 215. Find the rate of change from 1996 to 2007.
   
   \[ \text{A} \ 44 \quad \text{B} \ 4 \quad \text{C} \ \frac{1}{4} \quad \text{D} \ -4 \]  
   
   7. \( \text{B} \)

For Questions 8 and 9, use the arithmetic sequence 12, 15, 18, 21, . . .

8. Which is an equation for the \( n \)th term of the sequence?
   
   \[ \text{F} \ a_n = 3n + 9 \quad \text{H} \ a_n = 12n + 3 \quad \text{G} \ a_n = 9n + 3 \quad \text{J} \ a_n = n + 3 \]  
   
   8. \( \text{F} \)

9. What is the 12th term in the sequence?
   
   \[ \text{A} \ 38 \quad \text{B} \ 42 \quad \text{C} \ 45 \quad \text{D} \ 48 \]  
   
   9. \( \text{C} \)
10. Suppose \( y \) varies directly as \( x \), and \( y = 26 \) when \( x = 8 \). Find \( x \) when \( y = 65 \).

\[ \text{F} \quad 3.25 \quad \text{G} \quad 20 \quad \text{H} \quad 47 \quad \text{J} \quad 211.25 \]

11. Which line has an \( y \)-intercept of \(-2\)?

\[ \text{A} \quad \ell \quad \text{C} \quad t \]
\[ \text{B} \quad p \quad \text{D} \quad \text{both} \; \ell \; \text{and} \; t \]

12. Which line is the graph of \( y = 2x + 4 \)?

\[ \text{F} \quad \ell \quad \text{H} \quad \text{the} \; \text{x-axis} \]
\[ \text{G} \quad p \quad \text{J} \quad t \]

13. Which arithmetic sequence has a proportional related function?

\[ \text{A} \quad -4, -1, 2, \ldots \quad \text{B} \quad 0, -2, -4, \ldots \quad \text{C} \quad 1, 2, 3, \ldots \quad \text{D} \quad -\frac{1}{2}, 0, \frac{1}{2}, \ldots \]

14. Write \( y + 1 = -2x - 3 \) in standard form.

\[ \text{F} \quad 2x + y = -4 \quad \text{G} \quad y = -2x - 4 \quad \text{H} \quad -2x - y = 4 \quad \text{J} \quad x + \frac{1}{2}y = -2 \]

15. Find the zero of \( f(x) = 5x - 20 \).

\[ \text{A} \quad -20 \quad \text{B} \quad 0 \quad \text{C} \quad 4 \quad \text{D} \quad 5 \]

16. Determine which sequence is an arithmetic sequence.

\[ \text{F} \quad 3, 6, 12, 24, \ldots \quad \text{H} \quad -7, -3, 1, 5, \ldots \]
\[ \text{G} \quad \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \ldots \quad \text{J} \quad -10, 5, -\frac{5}{2}, \frac{5}{4}, \ldots \]

17. Find the next three terms of the arithmetic sequence 5, 9, 13, 17, \ldots

\[ \text{A} \quad 21, 23, 25 \quad \text{B} \quad 21, 25, 29 \quad \text{C} \quad 41, 45, 49 \quad \text{D} \quad 21, 41, 61 \]

18. Find the function that represents the relationship.

\[ \text{F} \quad y = 8x \quad \text{H} \quad y = 14x + 8 \]
\[ \text{G} \quad y = 8x + 14 \quad \text{J} \quad y = 14x + 14 \]

19. Which equation is a linear equation?

\[ \text{A} \quad 4m^2 = 6 \quad \text{C} \quad \frac{2}{3}xy - \frac{3}{4}y = 0 \]
\[ \text{B} \quad 3a + 5b = 3 \quad \text{D} \quad x^2 + y^2 = 0 \]

20. Write an equation in function notation for the relation at the right.

\[ \text{F} \quad f(x) = 2x \quad \text{H} \quad f(x) = 1 - x \]
\[ \text{G} \quad f(x) = x + 1 \quad \text{J} \quad f(x) = -x \]

See students’ work; \( x: 3, y: -3 \)

**Bonus** Graph \( y = x - 3 \) by using the \( x \)- and \( y \)-intercepts.

**Chapter 3**

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Glencoe Algebra 1