Name _____ Date _____ Class _____

Linear Functions
Quiz

Select the best answer.

1. Which equation describes the line with slope -4 and y-intercept 2?

    A $y = -4x + 2$ C $y = 4x - 2$
    B $y = -4x - 2$ D $y = 4x + 2$

2. Which equation describes the line that contains (1, 5) and has a slope of 2?

    F $y = 2x - 9$ H $y = 2x + 3$
    G $y = 2x + 9$ J $y = 2x - 3$

3. What are the slope and y-intercept of the line described by $y = 3x - 6$?

    A $m = -3; b = -6$ C $m = -6; b = 3$
    B $m = 3; b = -6$ D $m = 6; b = -3$

4. Which equation describes the line that passes through (2, 1) and (0, -5)?

    F $y = \dfrac{1}{3}x - 5$ H $y = -\dfrac{1}{3}x - 5$
    G $y = 3x - 5$ J $y = -3x - 5$

5. Which equation describes the line passing through (4, -2) with a slope of $\dfrac{1}{2}$?

    A $y = \dfrac{1}{2}x - 2$ C $y = \dfrac{1}{2}x + 4$
    B $y = \dfrac{1}{2}x - 4$ D $y = \dfrac{1}{2}x + 5$

6. The table shows a relationship between how large a mother mammal is and how long she carries a baby before birth.

Animal Weight (kg)	730	600	15	35	1
Gestation Period (days)	284	270	150	148	33

Which equation could represent a line of best fit for this data?

    F $y \approx 0.258x + 105.7$
    G $y \approx 105.7x + 0.258$
    H $y \approx 25.8x + 105.7$
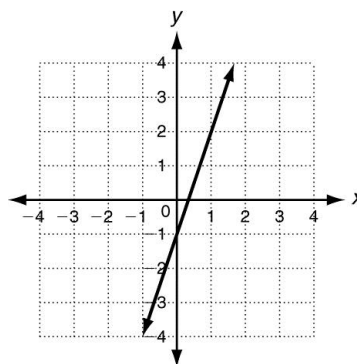   J $y \approx 25.8x + 1{,}057$

7. Which equation describes the line that passes through (-3, 1) and is parallel to the line described by $y = 4x + 1$?

    A $y = 4x + 13$ C $y = 4x - 11$
    B $y = -\dfrac{1}{4}x + \dfrac{1}{4}$ D $y = -\dfrac{1}{4}x + \dfrac{7}{4}$

8. Which equation describes a line perpendicular to $y = 3x - 5$?

    F $y = \dfrac{1}{3}x - 3$ H $y = -\dfrac{1}{3}x - 3$
    G $y = 3x - 3$ J $y = -3x - 3$

9. The graph of $g(x)$ is shown below. It was created by translating the graph of $f(x)$ down 2 units.

Which of the following is $f(x)$?

    A $f(x) = \dfrac{1}{3}x + 1$ C $f(x) = \dfrac{1}{3}x - 3$
    B $f(x) = 3x + 1$ D $f(x) = 3x - 3$

10. Which describes the effect on $f(x) = 3x + 7$ if the slope changes to 2?

    F graph shifts down 2
    G graph shifts up 2
    H graph becomes steeper
    J graph becomes less steep

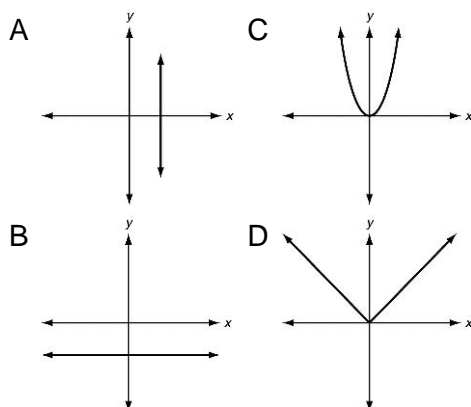11. The function $f(x) = -5x + 3$ is reflected across the y-axis. Which function describes the new graph $h(x)$?

    A $h(x) = 5x + 3$ C $h(x) = -5x - 3$
    B $h(x) = -5x + 3$ D $h(x) = 5x - 3$

Linear Functions

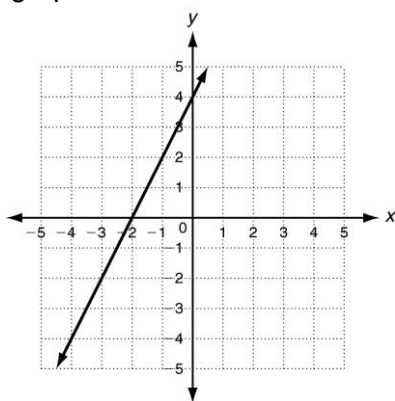### Quiz *(continued)*

Select the best answer.

12. Which of the following is a linear function?

   A   C

   B   D

13. Which of the functions below is a linear function?

   F $y = x - 7$ H $y = |x| - 7$

   G $y = x^2 - 7$ J $y = \dfrac{1}{x} - 7$

14. What are the *x*- and *y*-intercepts of the line graphed below?

   A *x*-int: 4, *y*-int: −2
   B *x*-int: −2, *y*-int: 4
   C *x*-int: −4, *y*-int: 2
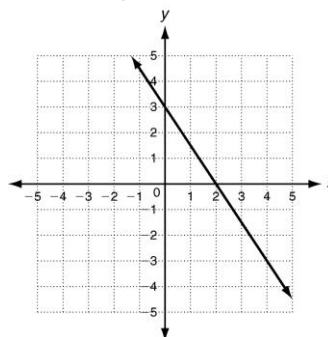   D *x*-int: 2, *y*-int: −4

15. What is the *x*-intercept of $4x + 2y = 6$?

   F $\dfrac{1}{3}$ H $\dfrac{3}{2}$

   G $\dfrac{2}{3}$ J 3

16. What is the slope of a vertical line?
   A positive   C 0
   B negative   D undefined

17. What is the slope of the line below?

   F $-\dfrac{3}{2}$ H $\dfrac{2}{3}$

   G $-\dfrac{2}{3}$ J $\dfrac{3}{2}$

18. What is the slope of the line containing the ordered pair (2, 3) and (−4, 0)?

   A −2   C $\dfrac{1}{2}$

   B $-\dfrac{1}{2}$ D 2

19. Decide if the equation $2x + 8 = y$ is a direct variation. If it is a direct variation, what is the constant of variation?

   F $\dfrac{1}{2}$

   G $-\dfrac{1}{2}$

   H 2

   J The equation is not a direct variation.

20. The equation $2x + 5y = 0$ is a direct variation. What is the constant of variation?

   A $-\dfrac{5}{2}$ C $\dfrac{2}{5}$

   B $-\dfrac{2}{5}$ D $\dfrac{5}{2}$

21. If the value of *y* varies directly with *x*, and $y = 4$ when $x = -10$, find *y* when $x = 35$.

   F −350   H −87.5
   G −140   J −14