Name _____ Date _____

Writing a Linear Equation from Two Points or a Table

Directions: Every point here is an ordered pair (x, y) unless a question names a different order. Equations are in slope-intercept form, $y = mx + b$. Check an equation by substituting the given points.

1. To write an equation in slope-intercept form for the line through the points (x, y) = (2, 5) and (6, 17), what should you find first?

A. The slope, $(17 - 5)/(6 - 2) = 3$
B. The slope, $(17 - 5)/(2 - 6) = -3$
C. The slope, $(6 - 2)/(17 - 5) = 1/3$
D. The y-intercept, which is 5

2. What is the slope of the line through the points (x, y) = (−3, 8) and (2, −12)?

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3. Kim found that the line through (x, y) = (4, 9) and (8, 11) has slope 0.5. Next she substitutes $x = 4$ and $y = 9$ into $y = 0.5x + b$ to find b. Why does this work?

A. The point (4, 9) is on the line, so $x = 4$ and $y = 9$ make the equation true.
B. The value of b is always the y-value of the first point.
C. Every line passes through the point (4, 9).
D. Substituting a point changes the slope to 9/4.

4. A line has slope −3 and passes through the point (x, y) = (−2, 10). What is its y-intercept, b, in $y = mx + b$?

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5. Which equation describes the line through the points (x, y) = (−1, 7) and (3, −1)?

A. $y = -2x + 5$
B. $y = -2x + 7$
C. $y = 2x + 9$
D. $y = -0.5x + 6.5$

Points on one line; x goes up by 2 in each row

x	y
0	5
2	12
4	19
6	26

6. The points in this table all lie on one line, and x goes up by 2 in each row. Which equation describes the line?

A. $y = 7x + 5$
B. $y = 3.5x + 5$
C. $y = 3.5x + 12$
D. $y = 2x + 5$

7. Rosa wrote an equation for the line through $(x, y) = (1, 4)$ and $(4, 19)$, but her work has a mistake.

1. $m = (19 - 4)/(4 - 1) = 15/3 = 5$
2. $b = 4$, because 4 is the y-value of $(1, 4)$
3. $y = 5x + 4$

Where does her work first go wrong?

A. Writing $y = 5x + 4$ from $m = 5$ and $b = 4$

B. Finding the slope, $m = (19 - 4)/(4 - 1) = 5$

C. Taking $b = 4$ because 4 is the y-value of $(1, 4)$

Points on one line; x goes up by 2 in each row, and no row has $x = 0$

x	**y**
2	3
4	8
6	13
8	18

8. The points in this table all lie on one line, and x goes up by 2 in each row. What is the y-intercept, b, of the line?

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9. Which points lie on the line through $(x, y) = (0, -3)$ and $(2, 1)$? Each point is written as (x, y). Select the three correct points.

☐ A. $(4, -1)$ ☐ B. $(1, -1)$ ☐ C. $(4, 5)$

☐ D. $(-1, -5)$ ☐ E. $(1, 5)$

10. A phone plan's monthly cost is a linear function of the data used. Using 2 gigabytes costs $30, and using 5 gigabytes costs $42. Written as (g, C), with g gigabytes and a cost of C dollars, these are (2, 30) and (5, 42). Which equation gives C in terms of g?

A. $C = -4g + 38$ B. $C = 0.25g + 29.5$

C. $C = 4g + 30$ D. $C = 4g + 22$