Name: _____ Class: _____ Date: _____ ID: B

Ch4- Writing Linear Functions

Review

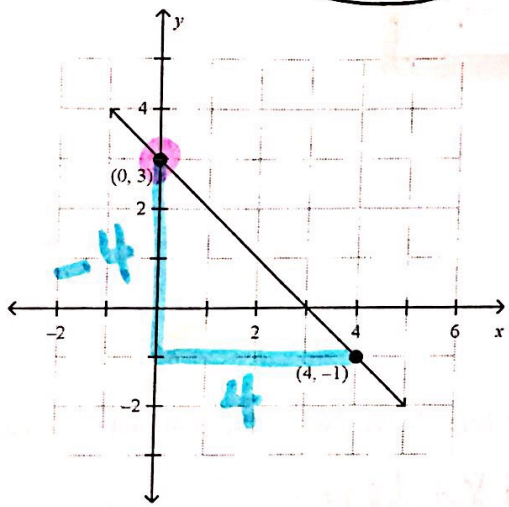
Parent Signature

Multiple Choice

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

$Ax+By=C$

____ 1. Write an equation in standard form of the line shown.



$m = -\frac{4}{4} = -1$

$b = 3$

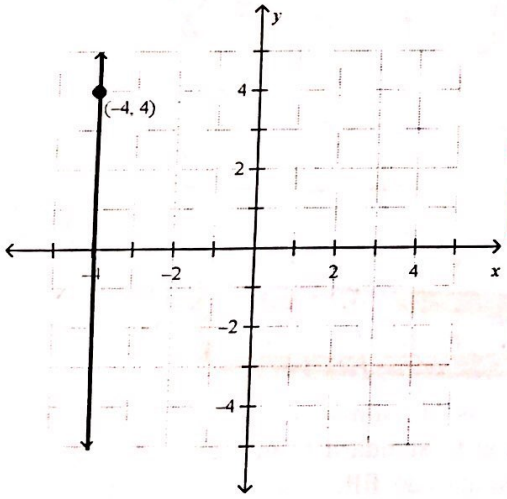
$y = mx + b$

$y = -1x + 3$

$+x \quad +x$

$\boxed{x + y = 3}$

____ 2. Write an equation of the line shown.



$\boxed{x = -4}$

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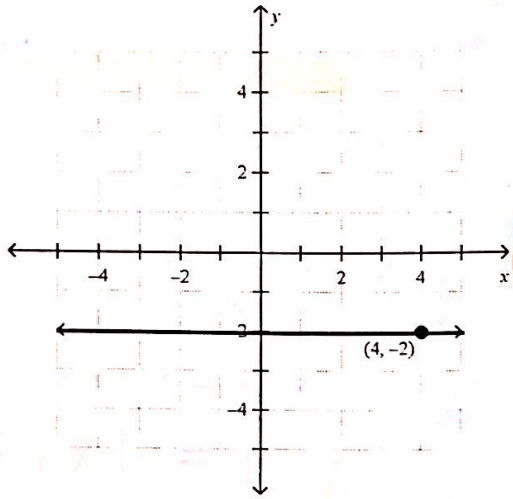
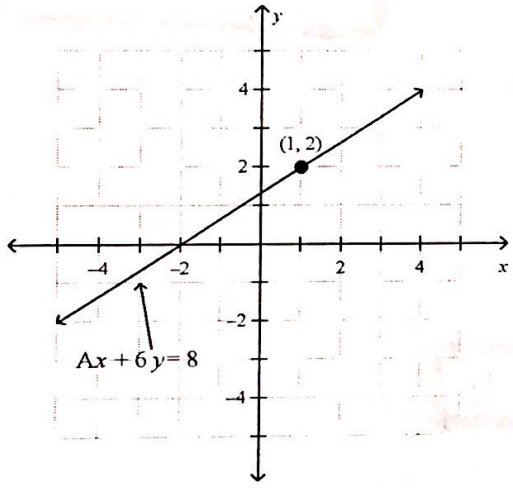
____ 3. Write an equation of the line shown.



$\boxed{y = -2}$

____ 4. Find the missing coefficient in the equation of the line shown. Write the completed equation.



$Ax + 6y = 8$

$A(1) + 6(2) = 8$

$A + 12 = 8$

$-12 \quad -12$

$A = -4$

$Ax + By = C$

$\boxed{-4x + 6y = 8}$ OR $\boxed{4x - 6y = -8}$

____ 5. An artist stores paints in trays and boxes. A tray holds 10 paints and a box holds 36 paints. The artist's paints can fill 5 trays and 6 boxes. Write an equation in standard form that models the possible combinations of trays and boxes that the artist's paints can fill.

x y

5 trays x 10 paints = 50 paints

6 boxes x 36 paints = 216 paints

50 + 216 = 266 paints altogether

$\boxed{10x + 36y = 266}$

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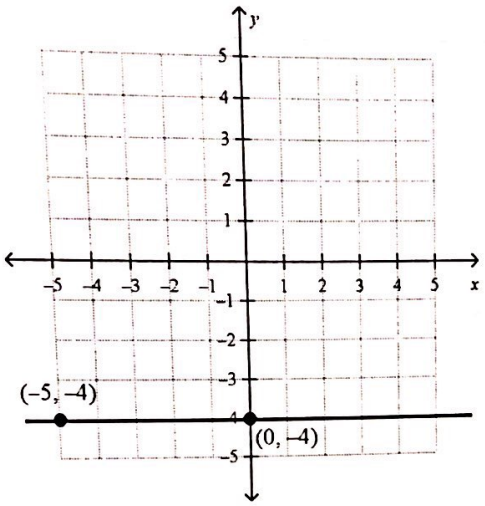
Write an equation of the line in slope-intercept form.

____ 6.



$\boxed{y = -4}$

Write an equation of the line that passes through the given points in point-slope form, slope-intercept, and standard form

____ 7. (–2, 4), (0, 7)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7-4}{0 \overset{-}{\underset{+}{-}} 2} = \frac{3}{2}$

$y - y_1 = m(x - x_1)$

$\boxed{y - 7 = \frac{3}{2}(x - 0)}$

$y - 7 = \frac{3}{2}x$

$\boxed{y = \frac{3}{2}x + 7}$

$-2 \quad \boxed{-\frac{3}{2}x + y} = \boxed{7} \quad -2$

$\boxed{3x - 2y = -14}$

____ 8. Write a linear function f with the values $f(3) = 5$ and $f(0) = -1$ in point-slope, slope-intercept, and standard form

(3, 5) (0, -1)

$m = \frac{-1-5}{0-3} = \frac{-6}{-3} = 2$

$y \overset{-}{\underset{+}{-}} 1 = 2(x - 0)$

$\boxed{y + 1 = 2(x - 0)}$

$y + 1 = 2x + 0$

$-1 \qquad -1$

$\boxed{y = 2x - 1}$

$-2x \qquad -2x$

$-1 \quad \boxed{-2x + y} = \boxed{-1} \quad -1$

$\boxed{2x - y = 1}$

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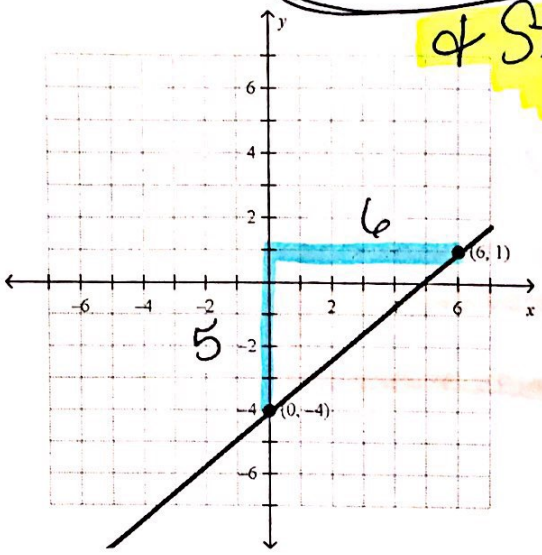
Write an equation in slope-intercept form of the line shown.

& STANDARD FORM

____ 9.



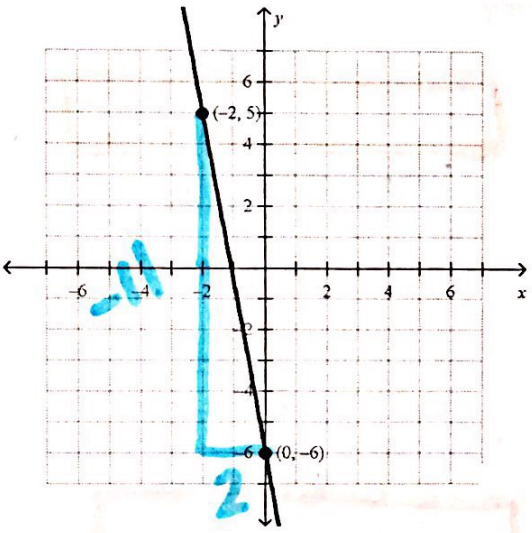
$y = mx + b$

$m = \frac{5}{6}$

$b = -4$

$\boxed{y = \frac{5}{6}x - 4}$

____ 10.



$m = \frac{-11}{2}$

$b = -6$

$y = mx + b$

$y = -\frac{11}{2}x + -6$

$\boxed{y = -\frac{11}{2}x - 6}$

$(-4, -2)$ $(-1, 2)$

____ 11. Write a linear function f with the values $f(-4) = -2$ and $f(-1) = 2$.

a. $f(x) = -4x - 2$

b. $f(x) = \frac{4}{3}x + \frac{10}{3}$

c. $f(x) = \frac{10}{3}x + \frac{4}{3}$

d. $f(x) = \frac{3}{4}x + 2$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - -2}{-1 - -4} = \boxed{\frac{4}{3}}$

$y = mx + b$

$2 = \frac{4}{3}(-1) + b$

$2 = -\frac{4}{3} + b$

$+\frac{4}{3} \quad +\frac{4}{3}$

$\boxed{b = \frac{10}{3}}$

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$(9, 8)$ $(8, 8)$ $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8-8}{8-9} = \frac{0}{-1} = 0$

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____ 12. Write a linear function f with the values $f(9) = 8$ and $f(8) = 8$.

$y = 0x + b$

$8 = \cancel{0(8)} + b$ $\boxed{b = 8}$

$f(x) = 0x + 8$ $\boxed{f(x) = 8}$

____ 13. Write an equation of the line that passes through the given point and is ~~perpendicular~~ parallel to the given line.

$(-1, 6)$; $y = x - 3$

$m = 1$

$(-1, 6)$

$y = mx + b$

$6 = 1(-1) + b$

$6 = -1 + b$

$6 = -1 + b$

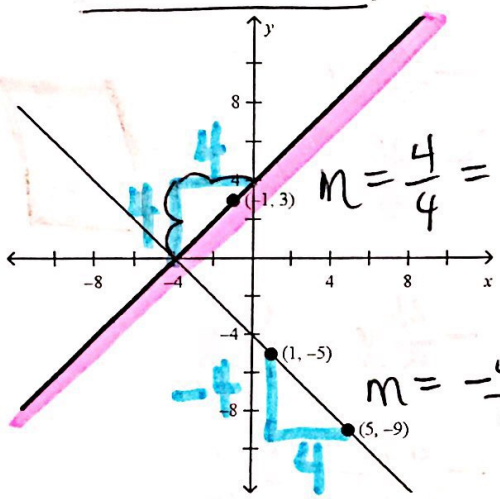
$-1 \quad -1$

$5 = b$

$y = +x + 5$

$\boxed{y = x + 5}$

____ 14. The path that you take to go from school to the library (shown in bold) is perpendicular to the path that takes you from home to the park. Write an equation that represents the path shown in bold.



$m = \frac{4}{4} = 1$

$m = \frac{-4}{4} = -1$

$y = mx + b$

$3 = 1(-1) + b$

$3 = -1 + b$

$+1 \quad +1$

$4 = \cancel{0} + b$

$-b \quad -b$

$4 = b$

$y = 1x + 4$

$\boxed{y = x + 4}$

Explain how you determined that this was the correct equation.

The slopes of perpendicular lines are opposite reciprocals. $m = -1$ is the original line's slope and $m = 1$ is the perpendicular line's slope, and these are opposite reciprocal slopes. The y-intercept of the bold line is $(0, 4)$ by looking at the graph.

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FRACTION OPERATION PRACTICE

Solve.

16. $\frac{1}{3} \cdot \frac{6}{8} = \frac{2}{8} = \boxed{\frac{1}{4}}$

16. $4\frac{1}{5} \cdot \frac{4}{3}$

$\frac{21}{5} \cdot \frac{4}{3} = \frac{28}{5} = \boxed{5\frac{3}{5}}$

$5\overline{)28}$ = 5, 25, 3

17. $\frac{11 \times 3}{4 \times 3} + \frac{2 \times 4}{3 \times 4}$

$\frac{33}{12} + \frac{8}{12} = \frac{41}{12}$

$= \boxed{3\frac{5}{12}}$

18. $-1\frac{4}{3} + \frac{4}{5}$

$-\frac{4 \times 5}{3 \times 5} + \frac{4 \times 3}{5 \times 3}$

$-\frac{20}{15} + \frac{12}{15} = \boxed{\frac{-8}{15}}$

Simplify.

19. $\frac{4}{3}(x + 3)$

$\boxed{\frac{4}{3}x + 4}$

$\frac{4}{3} \cdot \frac{3}{1} = \frac{4}{1} = 4$

20. $-\frac{4}{5}x - \frac{5}{2}x$

$-\frac{4 \times 2}{5 \times 2} - \frac{5 \times 5}{2 \times 5}$

$\frac{-8}{10} - \frac{25}{10} = \frac{-33}{10}$

$= \boxed{-3\frac{3}{10}}$

Making Equivalent Equations:

(You must do these, too!)

$Ax + By = C$ ← Standard form.

* Write an equation in standard form with integer coefficients.

a) $y = \frac{4}{3}x - \frac{1}{2}$

$-\frac{4}{3}x \quad -\frac{4}{3}x$

$\frac{6}{1}\left[-\frac{4}{3}x + y = -\frac{1}{2}\right]$

$\boxed{-8x + 6y = -3}$

b) $\frac{4}{1}\left[\frac{3}{2}x + \frac{1}{4}y = -2\right]$

$\boxed{6x + y = -8}$

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