Name: _____
Date: _____
Class: _____

Algebra
Unit 3
HW 3-5

1) What is the equation of a line passing through (2, 5) and (-3, 7)?

$m = \frac{2}{-5}$

(2,5) pt. on line

$5 = -\frac{2}{5}(2) + b$

$5 = -\frac{4}{5} + b$

$+\frac{4}{5} \quad +\frac{4}{5}$

$b = \frac{29}{5}$

$y = -\frac{2}{5}x + \frac{29}{5}$

2) What is the equation of a line that is perpendicular to $3x + 5y = 15$ which passes through (6, 7)?

pt on line

$7 = -\frac{5}{3}(6) + b$

$7 = -10 + b$

$+10 \quad +10$

$17 = b$

$y = -\frac{5}{3}x + 17$

$-3x \quad -3x$

$\frac{5y}{5} = \frac{15}{5} - \frac{3x}{5}$

$y = 3 - \frac{3}{5}x$

$m = \frac{3}{5}$

$\perp m = -\frac{5}{3}$

3) What is the equation of a line parallel to $2x - 6y = 14$ which passes through (2, -4)? pt on line

$y = \frac{1}{3}x - \frac{14}{3}$

$-2x \quad -2x$

$\frac{-6y}{-6} = \frac{14}{-6} - \frac{2x}{-6}$

$y = -\frac{14}{6} + \frac{1}{3}x$

$m = \frac{1}{3}$

$\| m = \frac{1}{3}$

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

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

$-\frac{2}{3} \quad -\frac{2}{3}$

$-\frac{14}{3} = b$

4) What is the equation of a line that passes through (-2, 7) and is perpendicular to another line that passes through (6, 2) and (2, 5)?

$-4(x) \quad +3(y)$

$m = \frac{3}{-4}$

$\perp m = \frac{4}{3}$

pt on line (-2, 7)

$7 = \frac{4}{3}(-2) + b$

$7 = -\frac{8}{3} + b$

$+\frac{8}{3} \quad +\frac{8}{3}$

$\frac{29}{3} = b$

$y = \frac{4}{3}x + \frac{29}{3}$

5) Which equation has a larger x intercept? → y must be 0

$7x - 5y = 14$ or $6y - 4x = 16$

$7x - 5(0) = 14$

$\frac{7x}{7} = \frac{14}{7}$

$x = 2$

larger

$6(0) - 4x = 16$

$-4x = 16$

$\frac{-4x}{-4} = \frac{16}{-4}$

$x = -4$

→ plug in and test

6) Is (-2, -4) on the line $3x - 2y = -2$?

$3(-2) - 2(-4) \stackrel{?}{=} -2$

$-6 + 8 = -2$

$2 \neq -2$ NOT on line

7) If 19 apples cost $5.25 how much would you expect 71 apples to cost?

$\frac{19}{5.25} = \frac{71}{x}$

$19x = 477.75$

$x = 25.1447...$ $25.14

8) If 184oz of liquid costs $7.24 what would the unit cost of this liquid be?

$\frac{7.24}{184} = .0393...$ ¢ per oz

.04