Geometry
HW: Parallel & Perpendicular Lines

Name: _____
Date: _____

**Determine if the lines are *parallel*, *perpendicular*, or *neither*.**

1. Line *k* contains points (0, 4) & (-3, 2)
   Line *h* contains points (-4, 6) & (2, 10)

line k: $m = \frac{2-4}{-3-0} = \frac{-2}{-3} = \frac{2}{3}$ $m_{\text{line k}} = \frac{2}{3}$

line h: $m = \frac{10-6}{2-4} = \frac{4}{6}$ $m_{\text{line h}} = \frac{2}{3}$

Circle one: **PARALLEL** PERPENDICULAR NEITHER

2. Line c: $y = -2x + 13$ $m = -2$
   Line d: $4y - 2x = -8$

$\frac{4y}{4} = \frac{2x}{4} - \frac{8}{4}$

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

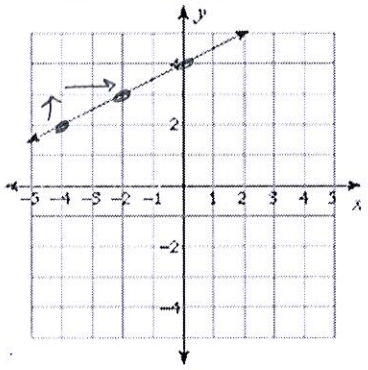
$m = \frac{1}{2}$

$m_{\text{line c}} = -2$

$m_{\text{line d}} = \frac{1}{2}$

Circle one: PARALLEL **PERPENDICULAR** NEITHER

3. Write the equation of a line that is parallel to the line graphed and passes through the point (4, -2). $m = \frac{1}{2}$



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

$-2 = 2 + b$

$-2 \quad -2$

$-4 = b$

**Equation:** $y = \frac{1}{2}x - 4$

**Find the slope of a line parallel and perpendicular to each given line.**

4. $y = 7$ horizontal line

$m_{\parallel} = 0$

$m_{\perp} =$ undefined

5. $\frac{2y}{2} = \frac{3x}{2} - \frac{6}{2}$

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

$m_{\parallel} = \frac{3}{2}$

$m_{\perp} = -\frac{2}{3}$

**Write the equation for a line that is *parallel* to the given line and contains the following points.**

8. $y = 3x - 7$ $m = 3$
   Contains the point (4, 7)

**equation:** $y = 3x - 5$

$7 = 3(4) + b$

$7 = 12 + b$

$-12 \quad -12$

$-5 = b$

$y = 3x - 5$

**Write the equation for a line that is *perpendicular* to the given line and contains the following points.**

9. $y = \frac{1}{2}x + 10$ $m = \frac{1}{2}$ $\perp m = -2$
   Contains the point (5, -6)

**equation:** $y = -2x + 4$

$-6 = -2(5) + b$

$-6 = -10 + b$

$+10 \quad +10$

$4 = b$

$y = -2x + 4$

A 10. What is the slope of a horizontal line?

(A) 0 B. 2 C. undefined D. ½

C 11. What is the slope of a vertical line?

A. 0 B. 2 (C.) undefined D. ½