Name _____ Date _____

Slopes of Parallel and Perpendicular Lines

Find the slope of the given line. State the slope of any line parallel and perpendicular to the given line.

1. (3, -16), (-7 ,-15) any parallel line: $-\frac{1}{10}$ any perpendicular line: 10	2. (1, -13), (-5, -7) any parallel line: -1 any perpendicular line: 1	3. (-4, 7), (-6, -3) any parallel line: 5 any perpendicular line: $-\frac{1}{5}$	4. $(20,8),(9,16)$ any parallel line: $-\frac{8}{11}$ any perpendicular line: $\frac{11}{8}$
5. $(17,-13),(17,8)$ Undefined any parallel line: Undefined any perpendicular line: 0	6. $(19,3),(20,3)$ any parallel line: 0 any perpendicular line: Undefined	7. (3, 0), (-5, -15) any parallel line: $\frac{15}{8}$ any perpendicular line: $-\frac{8}{15}$	8. $(6,-10),(-15,15)$ any parallel line: $\frac{-25}{21}$ any perpendicular line: $\frac{21}{25}$

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

9. Line 1: $(1,2)$ and $(-1,-2)$ Line 2: $(0,4)$ and $(-2,0)$ Line 1: 2 Line 2: 2 //	10. Line 1: $(0,-4)$ and $(-1,-7)$ Line 2: $(3,0)$ and $(-3,2)$ Line 1: 3 Line 2: $-\frac{1}{3}$ ⊥

11. Write the equation of the line as indicated.

a. Write the equation of the line passing through the points (-2, 6) and (4, -6).

$m = -2$ $\quad 6 = -2(-2) + b$ $\quad 2 = b$ $\quad y = -2x + 2$

b. Write the equation of the line parallel to the line in part a, that passes though the point (8,4).

$m = -2$ $\quad 4 = -2(8) + b$ $\quad 20 = b$ $\quad y = -2x + 20$

c. Write the equation of the line perpendicular to the line in part b, that passes through the origin.

$m = \frac{1}{2}$ $\quad b = 0$ $\quad y = \frac{1}{2}x$

12. Write the equation of the line as indicated.

a. Write the equation of the line passing through the points (6, 8) and (4, 4).

$m = 2$ $\quad 4 = 2(4) + b$ $\quad -4 = b$ $\quad y = 2x - 4$

b. Write the equation of the line parallel to the line in part a, that passes though the point (5,0).

$m = 2$ $\quad 0 = 2(5) + b$ $\quad -10 = b$ $\quad y = 2x - 10$

c. Write the equation of the line perpendicular to the line in part b, that passes through the point (-5, -1).

$m = -\frac{1}{2}$ $\quad -1 = -\frac{1}{2}(-5) + b$ $\quad -\frac{7}{2} = b$ $\quad y = -\frac{1}{2}x - \frac{7}{2}$