Name: _____

Find the slope of a line *parallel* to the graph of each equation.

1. $y = 4x + 2$ 2. $x = -4$ 3. $9x - 5y = 4$ 4. $y - 9 = 0$

5.   Write equations of two parallel lines.

Write an equation in slope intercept form of the line that passes through the given point and is *parallel* to the graph of the given equation.

6. $(3, 4)$; $y = -2x - 7$ 7. $(4, -1)$; $y = x - 3$ 8. $(-8, -4)$; $y = -\dfrac{3}{4}x + 5$

Find the slope of a line perpendicular to the graph of each equation.

9. $y = -9x - 13$ 10. $y = 1$ 11. $-x = 8$ 12. $6x + 2y = 4$

13.   Write equations of two perpendicular lines.

14.   Identify each pair of parallel lines. Then identify each pair of perpendicular lines.

Parallel Lines: _____   Perpendicular Lines: _____

line *a*: $y = 3x + 3$ line *b*: $x = -1$ line *c*: $y = 3$

line *d*: $y - 5 = \dfrac{1}{2}(x - 2)$ line *e*: $y + 4 = -2(x + 6)$ line *f*: $9x - 3y = 5$

Write an equation in slope intercept form of the line that passes through the given point and is *perpendicular* to the graph of the given equation.

15. $(-5, 5)$; $y = -5x + 9$ 16. $(1, 1)$; $y = -\frac{1}{4}x + 7$ 17. $(0, -3)$; $y = \frac{4}{3}x - 7$

Determine whether the graphs of the given equations are parallel, perpendicular, or neither. Explain.

18. $y = \frac{2}{3}x + 6$ 19. $y = -6$ 20. $9x + 3y = 6$ 21. $y = 2$
       $3x + 2y = -5$ $y = 6$ $3x + 9y = 6$ $x = -5$

Determine whether each statement is always, sometimes, or never true. Explain.

22.   A horizontal line is parallel to the x-axis.

23.   Two lines with positive slopes are parallel.

24.   Two lines with the same slope and different y-intercepts are perpendicular.