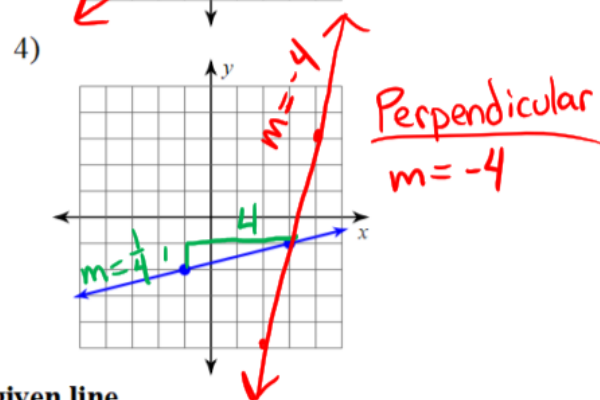
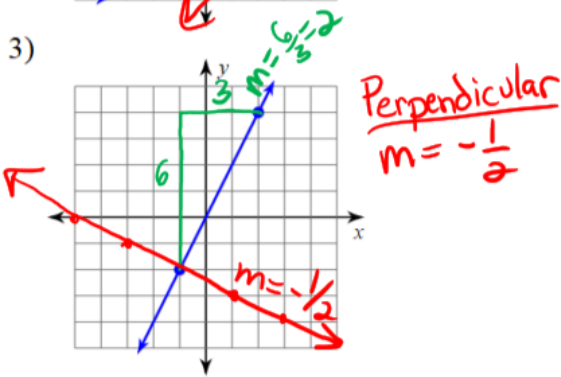
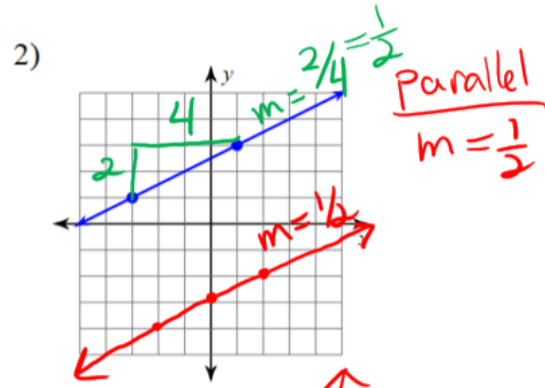
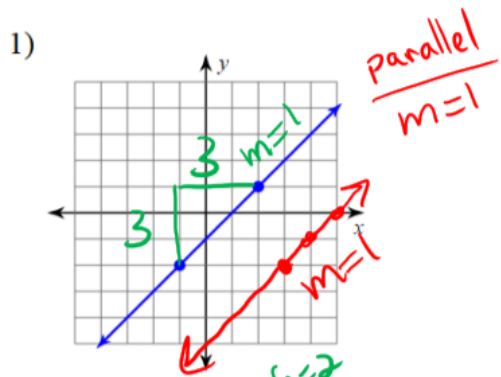


Practice Set 1

For problems 1 and 2 create a line parallel to given one. For problems 3 and 4 create a line perpendicular to the given one. Explain by identifying the slope of the original line and your line.



Write an equation of a line perpendicular to each given line.

5) $y = \frac{7}{5}x + 2$ original $m = \frac{7}{5}$ perp $m = -\frac{5}{7}$
 $y = -\frac{5}{7}x$

6) $y = -\frac{2}{5}x + 4$ original $m = -\frac{2}{5}$ perp $m = \frac{5}{2}$
 $y = \frac{5}{2}x$

Write an equation of a line parallel to each given line.

7) $y = -\frac{7}{2}x + 3$ original $m = -\frac{7}{2}$ parallel $m = -\frac{7}{2}$
 $y = -\frac{7}{2}x$

8) $y = -\frac{5}{3}x + 2$ original $m = -\frac{5}{3}$ parallel $m = -\frac{5}{3}$
 $y = -\frac{5}{3}x$

Write an equation for a line that is parallel for 9 and 10 and perpendicular for 11 and 12 to the line created from the given points.

9) $(-8, -2), (-7, 5)$
 original $m = 7$ perp $m = -\frac{1}{7}$
 $y = -\frac{1}{7}x$

10) $(-4, -10), (-1, -1)$
 original $m = \frac{9}{3} = 3$ perp $m = -\frac{1}{3}$
 $y = -\frac{1}{3}x$

11) $(-3, -13), (-11, -19)$
 original $m = \frac{6}{8} = \frac{3}{4}$ parallel $m = \frac{3}{4}$
 $y = \frac{3}{4}x$

12) $(-20, 1), (-19, -8)$
 original $m = \frac{-9}{1} = -9$ parallel $m = -9$
 $y = -9x$

Geometry in Coordinate Plane

Name _____

Parallel and Perpendicular

Write an equation for a line parallel to the given line.

Through a point, use the point slope formula
 same slope $y - y_1 = m(x - x_1)$

1) $y = 3x + 5$

original $m = 3$ parallel $m = 3$ $y = 3x$

2) $y = \frac{2}{3}x + 5$

original $m = \frac{2}{3}$ parallel $m = \frac{2}{3}$ $y = \frac{2}{3}x$

3) $x + y = 2$, through point (2,1)

original $x + y = 2$
 $y = -x + 2$
 $m = -1$
 parallel $m = -1$ (2,1)
 $y - 1 = -1(x - 2)$
 $y - 1 = -x + 2$
 $y = -x + 3$
 Use this equation

4) $x - 2y = -6$, through point (6, -5)

original $x - 2y = -6$
 $-2y = -x - 6$
 $y = \frac{1}{2}x + 3$
 $m = \frac{1}{2}$
 parallel $m = \frac{1}{2}$ (6, -5)
 $y - (-5) = \frac{1}{2}(x - 6)$
 $y + 5 = \frac{1}{2}x - 3$
 $y = \frac{1}{2}x - 8$

Write an equation for a line perpendicular to the given line.

5) $y = 2x + 1$, through point (4,6)

original $m = 2$ perp. $m = -\frac{1}{2}$
 $y - 6 = -\frac{1}{2}(x - 4)$
 $y - 6 = -\frac{1}{2}x + 2$
 $y = -\frac{1}{2}x + 8$

6) $y = \frac{2}{5}x - 5$, through point (-2, 2)

original $m = \frac{2}{5}$ perp. $m = -\frac{5}{2}$
 $y - 2 = -\frac{5}{2}(x - (-2))$
 $y - 2 = -\frac{5}{2}x - 5$
 $y = -\frac{5}{2}x - 3$

7) $3x + y = 0$

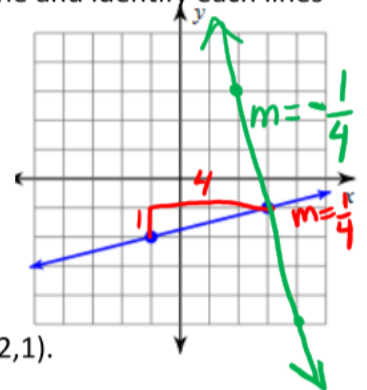
original $3x + y = 0$
 $y = -3x$
 $m = -3$
 perp. $m = \frac{1}{3}$
 $y = \frac{1}{3}x$

8) $3x - y = -1$
 original $3x - y = -1$
 $-y = -3x - 1$
 $y = 3x + 1$
 $m = 3$
 perp. $m = -\frac{1}{3}$
 $y = -\frac{1}{3}x$

9) Write an equation for a line parallel to a line with the points (-14, -16), (2, -20)

original $m = -\frac{4}{12} = -\frac{1}{3}$ parallel $m = -\frac{1}{3}$
 $y = -\frac{1}{3}x$

10. Draw a line perpendicular to the given line and identify each lines slope.



11. Write the equation for a line parallel to line $y - 4x = 7$ that goes through point (2,1).

original $y - 4x = 7$
 $y = 4x + 7$
 $m = 4$
 parallel $m = 4$ (2,1)
 $y - 1 = 4(x - 2)$
 $y - 1 = 4x - 8$
 $y = 4x - 7$

12. Write the equation for a line that is perpendicular to the line $3y + 6x + 7 = -2$ and goes through point (10,6).

original $3y + 6x + 7 = -2$
 $3y + 6x = -9$
 $3y = -6x - 9$
 $y = -2x - 3 \Rightarrow m = -2$
 perp. $m = \frac{1}{2}$ (10,6)
 $y - 6 = \frac{1}{2}(x - 10)$
 $y - 6 = \frac{1}{2}x - 5$
 $y = \frac{1}{2}x + 1$