

N: Key

D: _____ P: 1 2 3 4 5 6

Algebra 2 : Topic 2 // 2.4 Practice // **Practice 2**

Mission Hills Math 2013

→ $y_2 - y_1 = m(x - x_1)$

Directions: Write the equation of the following lines in slope-intercept form.

1. Write the equation of the line that has a slope of -3 and a y-intercept of 1.

m b
 $y = -3x + 1$

2. Write the equation of the line that has a slope of 2 and a y-intercept of 0.

$m = 2$ $b = 0$
 $y = 2x$

3. Write the equation of the line that has a slope of 0 and a y-intercept of -6.

$m = 0$ $b = -6$
 $y = -6$

4. Write the equation of the line that has an undefined slope and an x-intercept of 2.

$m = \text{undefined}$ $(2, 0)$
vertical $x = 2$ ← thru 2

5. Write the equation of the line that has a slope of 1 and passes through (4, -3)

$m = 1$ x_1, y_1
 $y - y_1 = m(x - x_1)$
 $y - (-3) = 1(x - 4)$
 $y + 3 = x - 4$ → $y = x - 7$

6. Write the equation of the line that has a slope of $\frac{1}{2}$ and passes through (-8, 0)

x_1, y_1
 $y - 0 = \frac{1}{2}(x - (-8))$
 $y = \frac{1}{2}(x + 8)$
 $y = \frac{1}{2}x + 4$

7. Write the equation of the line that has a slope of -6 and passes through (-1, -1)

x_1, y_1
 $y - (-1) = -6(x - (-1))$
 $y + 1 = -6(x + 1)$
 $y + 1 = -6x - 6$
 $y = -6x - 7$

8. Write the equation of the line that has a slope of $-\frac{2}{3}$ and passes through (6, 2)

x_1, y_1
 $y - 2 = -\frac{2}{3}(x - 6)$
 $y - 2 = -\frac{2}{3}x + 4$
 $y = -\frac{2}{3}x + 6$

9. Write the equation of the horizontal line that passes through (4, 1)

$m = 0$
 $y = 1$

10. Write the equation of the vertical line that passes through (-7, -2)

$m = \text{undefined}$
 $x = -7$

11. Write the equation of the line that has a slope of zero and passes through (-3, 5)

$m = 0$ x_1, y_1 horiz.
 $y - 5 = 0(x - (-3))$
 $y - 5 = 0(x + 3)$
 $y - 5 = 0$ → $y = 5$ like #9

12. Write the equation of the line that passes through (2, -4) and (4, 2)

x_1, y_1 x_2, y_2
 $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-4)}{4 - 2} = \frac{2 + 4}{2} = \frac{6}{2}$
 $m = 3$ $(4, 2)$ x_1, y_1

$y - 2 = 3(x - 4)$
 $y - 2 = 3x - 12$
 $y = 3x - 10$

13. Write the equation of the line that passes through $(-1, 6)$ and $(3, 2)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 6}{3 - (-1)} = \frac{-4}{4} = -1$$

$$y - 2 = -1(x - 3)$$

$$y - 2 = -x + 3$$

$$+2$$

$$y = -x + 5$$

14. Write the equation of the line that passes through $(0, 4)$ and $(6, 7)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 4}{6 - 0} = \frac{3}{6} = \frac{1}{2}$$

$$y - 4 = \frac{1}{2}(x - 0)$$

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

$$+4$$

$$y = \frac{1}{2}x + 4$$

15. Write the equation of the line that passes through $(2, 4)$ and $(2, -10)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-10 - 4}{2 - 2} = \frac{-14}{0} \rightarrow \text{undefined}$$

vertical

$$x =$$

$$x = 2$$

16. Write the equation of the line that passes through $(5, -3)$ and $(4, -5)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 - (-3)}{4 - 5} = \frac{-5 + 3}{-1} = \frac{-2}{-1} = 2$$

$$y - (-3) = 2(x - 5)$$

$$y + 3 = 2x - 10$$

$$-3$$

$$y = 2x - 13$$

17. Write the equation of the line that passes through $(-7, 1)$ and $(0, 1)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 1}{0 - (-7)} = \frac{0}{7} = 0$$

horizontal

$$y =$$

$$y = 1$$

18. Write the equation of the line that passes through $(2, -4)$ and $(-4, 1)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - (-4)}{-4 - 2} = \frac{5}{-6} = -\frac{5}{6}$$

$$y = -\frac{5}{6}x - \frac{7}{3}$$

$$y - 1 = -\frac{5}{6}(x - (-4))$$

$$y - 1 = -\frac{5}{6}(x + 4)$$

$$y - 1 = -\frac{5}{6}(x + 4)$$

$$y - 1 = -\frac{5}{6}x - \frac{20}{6}$$

$$+1$$

$$y = -\frac{5}{6}x - \frac{14}{6}$$

19. Write the equation of the line that passes through the origin and the point $(-7, 3)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 0}{-7 - 0} = \frac{3}{-7} = -\frac{3}{7}$$

$$y - 0 = -\frac{3}{7}(x - 0)$$

$$y = -\frac{3}{7}x$$

20. Write the equation of the line that has an x-intercept of 5 and a y-intercept of -6.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 0}{0 - 5} = \frac{-6}{-5} = \frac{6}{5}$$

$$y - 0 = \frac{6}{5}(x - 5)$$

$$y = \frac{6}{5}x - 6$$