Slope Intercept Form:

$y = mx + b$

Writing Linear Equations

Unit 3: Introduction to Functions

Write the slope-intercept form of the equation of each line given the slope and y-intercept:

1. $Slope = -3, y-intercept = -1$

$m = -3$ $b = -1$

$y = -3x - 1$

2. $Slope = -7, y-intercept = -3$

$m = -7$ $b = -3$

$y = -7x - 3$

3. $Slope = 3, y-intercept = -3$

$m = 3$ $b = -3$

$y = 3x - 3$

4. $Slope = \frac{5}{3}, y-intercept = 0$

$m = \frac{5}{3}$ $b = 0$

$y = \frac{5}{3}x + 0$ OR $y = \frac{5}{3}x$

5. $Slope = \frac{7}{5}, y-intercept = 3$

$m = \frac{7}{5}$ $b = 3$

$y = \frac{7}{5}x + 3$

6. $Slope = -\frac{1}{2}, y-intercept = -5$

$m = -\frac{1}{2}$ $b = -5$

$y = -\frac{1}{2}x - 5$

7. $Slope = -\frac{4}{5}, y-intercept = -1$

$m = \frac{-4}{5}$ $b = -1$

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

8. $Slope = 7, y-intercept = 5$

$m = 7$ $b = 5$

$y = 7x + 5$

9. $Slope = \frac{3}{4}, y-intercept = 0$

$m = \frac{3}{4}$ $b = 0$

$y = \frac{3}{4}x + 0$ OR $y = \frac{3}{4}x$ preferred

10. $Slope = 3, y-intercept = -4$

$m = 3$ $b = -4$

$y = 3x - 4$

Point-Slope Form: $y - y_1 = m(x - x_1)$

Write the point-slope form of the equation of the line through the given point with the given slope:

11. *through:* $(2, -3)$, *slope* $= -\frac{3}{2}$

x_1 y_1 $m = -\frac{3}{2}$

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

$\boxed{y + 3 = -\frac{3}{2}(x - 2)}$

12. *through:* $(-4, 4)$, *slope* $= -\frac{3}{4}$

x_1 y_1 $m = -\frac{3}{4}$

$y - 4 = -\frac{3}{4}(x - (-4))$

$\boxed{y - 4 = -\frac{3}{4}(x + 4)}$

13. *through:* $(-3, -4)$, *slope* $= \frac{5}{3}$

x_1 y_1 $m = \frac{5}{3}$

$y - (-4) = \frac{5}{3}(x - (-3))$

$\boxed{y + 4 = \frac{5}{3}(x + 3)}$

14. *through:* $(-2, -3)$, *slope* $= -\frac{1}{2}$

x_1 y_1 $m = -\frac{1}{2}$

$y - (-3) = -\frac{1}{2}(x - (-2))$

$\boxed{y + 3 = -\frac{1}{2}(x + 2)}$

15. *through:* $(3, 5)$, *slope* $= \frac{7}{3}$

x_1 y_1 $m = \frac{7}{3}$

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

$\boxed{y - 5 = \frac{7}{3}(x - 3)}$

16. *through:* $(-4, 2)$, *slope* $= -\frac{1}{2}$

x_1 y_1 $m = -\frac{1}{2}$

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

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

17. *through:* $(1, 3)$, *slope* $= 0$

x_1 y_1 $m = 0$

$y - 3 = 0(x - 1)$

$\boxed{y - 3 = 0(x - 1)}$

18. *through:* $(5, 1)$, *slope* $= -\frac{3}{2}$

x_1 y_1 $m = -\frac{3}{2}$

$y - 1 = -\frac{3}{2}(x - 5)$

$\boxed{y - 1 = -\frac{3}{2}(x - 5)}$

19. *through:* $(-2, 1)$, *slope* $= 1$

x_1 y_1 $m = 1$

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

$\boxed{y - 1 = 1(x + 2)}$

20. *through:* $(-2, -3)$, *slope* $= \frac{5}{2}$

x_1 y_1 $m = \frac{5}{2}$

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

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