18-19   Writing Linear Equations   2.4

Warm-up - Solve each for b.   p.18

1. $10 = (-2)(-3) + b$

$$10 = 6 + b$$
$$\underline{-6 \quad -6}$$
$$4 = b$$

2. $-5 = \left(\frac{1}{2}\right)(-14) + b$

$$-5 = -7 + b$$
$$\frac{7}{2} = B \quad \boxed{B = 2}$$

$$y = mx + b$$

Recall: What 2 pieces of information do we need to know about a line in order to write the SLOPE - INTERCEPT FORM?

$$y = mx + b$$

$$\frac{rise}{run} = slope = m$$

$$y \cdot intercept = b$$

$$\boxed{y = mx + b}$$ p.19

1) Write the equation of a line in
Slope - Intercept Form with a
slope of 3 and y-intercept of -1.

$$y = 3x + -1$$

$$y = 3x - 1$$

$$\boxed{y = mx + b}$$ p.19

2) Write the equation of a line in
Slope - Intercept Form that
passes through the point (2,3)
and has a slope of $-\frac{1}{2}$.   x, y

$$3 = \left(-\frac{1}{2}\right)(2) + b$$

$$3 = -1 + b$$

$$\boxed{4 = b}$$

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

Another way we can find the previous   p.19

problem is by using $(2, 3)$ $m = -\frac{1}{2}$

$\underset{x_1 \; y_1}{}$

Point-Slope Form $\boxed{y - y_1 = m(x - x_1)}$

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

$$y - 3 = -\frac{1}{2}x + 1$$
$$ + 3 \phantom{= -\frac{1}{2}x} + 3$$

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

$\boxed{\textbf{y = mx + b}}$ p.19

3) Write the equation of a line in **Slope - Intercept Form** that passes through the point (-1,-3) and has a slope of 4.

$$-3 = 4(-1) + b$$
$$-3 = -4 + b$$
$$\underline{+4 + 4}$$
$$1 = b$$
$$y = 4x + 1$$

Practice

Complete 2.4 practice worksheet

-- work with your partner

Closing Question: `p.18`

$$\boxed{y = mx + b}$$

Write the equation of a line in
Slope - Intercept Form that passes
through the point (-5, 4)
and has a slope of $-\frac{2}{5}$.

$$4 = \left(-\frac{2}{5}\right)\left(-5\right) + b$$

$$4 = 2 + b$$

$$2 = b$$

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