

# Target 4-2

Algebra 1  
12-2-13

Slope Intercept Form

$$y = mx + b$$

slope  $\leftarrow$   $m$   $\leftarrow$   $y$ -int

$(x, y)$

① Write an equation in slope intercept form given:

slope  $(m) = -3$

point  $(x, y) = (1, 4)$

$$y = mx + b$$

$$4 = -3(1) + b$$

solve for b

$$4 \neq -3 + b$$

$$+3 \quad +3$$

$$7 \neq b$$

$$b = 7$$

$$\begin{matrix} m = -3 \\ x = 1 \\ y = 4 \end{matrix}$$

$$y = -3x + 7$$

② slope  $(m) = 5$

point  $(x, y) = (-1, -3)$

$$m = 5$$

$$x = -1$$

$$y = -3$$

$$y = mx + b$$

$$-3 = 5(-1) + b$$

$$-3 = -5 + b$$

$$+5 \quad +5$$

$$2 = b$$

$$b = 2$$

$$y = 5x + 2$$

③ write an equation of a line that passes through  $(2, -3)$  with a slope of  $\frac{1}{2}$ .

slope:  $\frac{1}{2}$

point:  $(2, -3)$

$$m = \frac{1}{2}$$

$$x = 2$$

$$y = -3$$

$$y = mx + b$$

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

$$-3 = 1 + b$$

$$-1 \quad -1$$

$$-4 = b$$

$$b = -4$$

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

④  $(-1, -3)$  slope 5

$$m = 5$$

$$x = -1$$

$$y = -3$$

$$y = mx + b$$

$$-3 = 5(-1) + b$$

$$-3 = -5 + b$$

$$+5 \quad +5$$

$$2 = b$$

$$y = 5x + 2$$

⑤  $(-5, 4)$  slope: 0

$m = 0$

$x = -5$

$y = 4$

$y = 0x + 4$   
 $y = 4$

$4 = 0(-5) + b$

$4 = b$

⑥  $(4, -5)$  slope:  $-\frac{1}{2}$

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

$x = 4$

$y = -5$

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

$-5 = -\frac{1}{2}(4) + b$

$-5 = -2 + b$

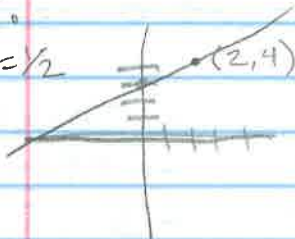
$+2 \quad +2$

$-3 = b$

Write an equation for the following problem in slope intercept form

7.

$m = \frac{1}{2}$



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

8.



$y = -2x$

$m$  is positive  
 $\uparrow$

9. Hunger Games box office sales were increasing at a rate of 4 million sales a week. In the 6<sup>th</sup> week sales were up to 36 million dollars.

Write an equation for the line in slope intercept form

$m = 4$  million  $\leftarrow$  change in  $y$ 's (weeks, dollars)

1 week  $\leftarrow$  change in  $x$ 's (6, 36)

$m = 4 \quad x = 6 \quad y = 36$

$y = mx + b$

$36 = 4(6) + b$

$36 = 24 + b$

$-24 \quad -24$

$12 = b$

$y = 4x + 12$

If the sales continue, how many sales will there be in week 12?  $x = 12 \quad y = 4(12) + 12 = 60$

The sales will be \$60 million in week 12.

(10) During the soccer playoffs, the teams drop by 4 teams per week.

slope is negative

In the 3rd week, we are down to only 4 teams. Write an equation in slope intercept form that represents the situation.

Slope:  $-\frac{4 \text{ teams}}{1 \text{ week}}$  (weeks, # of teams)

$$m = -4 \quad x = 3 \quad y = 4 \quad (3, 4)$$

$$4 = -4(3) + b$$

$$4 = -12 + b$$

$$+12 \quad +12$$

$$16 = b$$

$$\rightarrow y = -4x + 16$$

How many teams started in the playoffs?

16 teams started in the playoffs.

HW: p 229 # 10-15 all, 22, 24-30 all

