

Key

4.5 Graph Using Slope-Intercept Form

Vocabulary

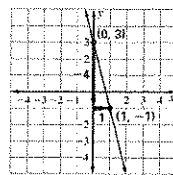
A linear equation of the form $y = mx + b$ is written in **slope-intercept form**, where m is the slope and b is the y -intercept of the equation's graph.

Two lines in the same plane are **parallel** if they do not intersect.

Parallel lines will have the SAME slope!

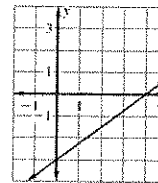
I. Identify the slope and y -intercept of the line whose graph is shown

1.



y -int " b " = 3
slope " m " = $-\frac{4}{1}$

2.



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

II. Identify the slope and y -intercept of the line with the given equation

3. $y = (1/4)x - 2$

$b = -2$
 $m = \frac{1}{4}$

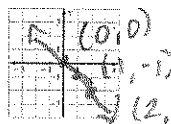
4. $-2x + 3y = 9$

$\frac{2y}{3} = \frac{2x+9}{3}$
 $y = \frac{2}{3}x + 3$
 $b = 3$
 $m = \frac{2}{3}$

III. Graph the equation

5. $y = -x$

$b = 0$
 $m = -1$



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

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



IV. Tell whether the graphs of the two equations are parallel lines

7. $y = 8x - 3$ and $8x + y = 3$

$m = 8$ or $\frac{8}{1}$ $y = -8x + 3$ $m = -8$ **NO**

8. $2x + y = 5$ and $y = 0.5x + 5$

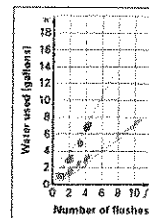
$4y = -2x + 10$ $y = 0.5x + 5$
 $4y = -2x + 10$ $m = -\frac{1}{2}$

$y = -\frac{1}{2}x + \frac{5}{4}$
 $m = -\frac{1}{2}$ **Yes**

V. Story Problems

9.

Water Usage A new toilet model has two different flush settings in order to conserve water. One setting uses 1.6 gallons of water per flush and the other setting uses 0.8 gallon of water per flush. The total amount w (in gallons) of water used in the first setting is given by the equation $w = 1.6f$ where f is the number of times the toilet is flushed. The total amount of water used in the second setting is given by the equation $w = 0.8f$.



- Graph both equations in the same coordinate plane. What do the slopes and the w -intercepts mean in this situation?
- How much more water is used by the first setting if the toilet is flushed 10 times?

$1.6 \text{ gal } m = 1.6, b = 0$
 $0.8 \text{ gal } m = .8, b = 0$
 $w = 1.6(f)$
 $w = 1.6(10)$
 $w = 16 \text{ gal.}$

$w = .8(f)$
 $.8(10)$
 8 gal.

3.2
 $\frac{1.6}{.8}$
 $\frac{1.6}{.8}$
 $\frac{1.6}{.8}$

or twice as much