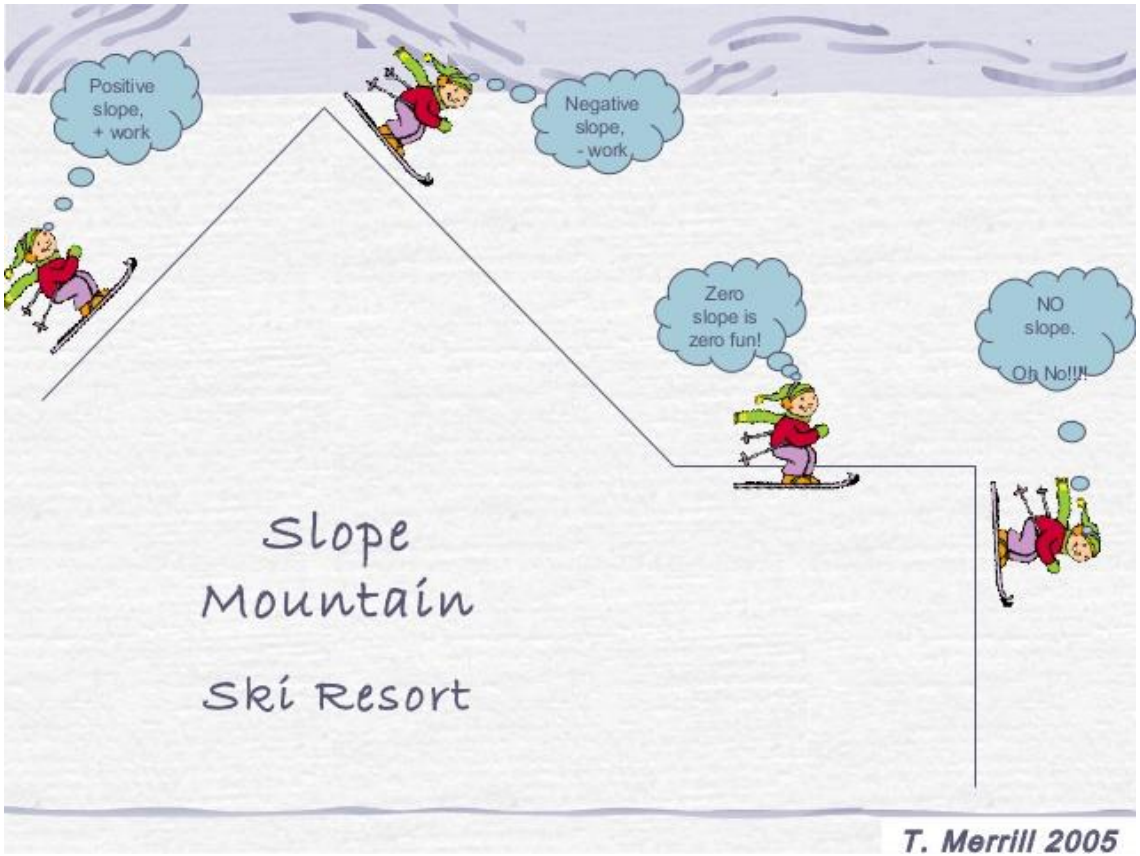
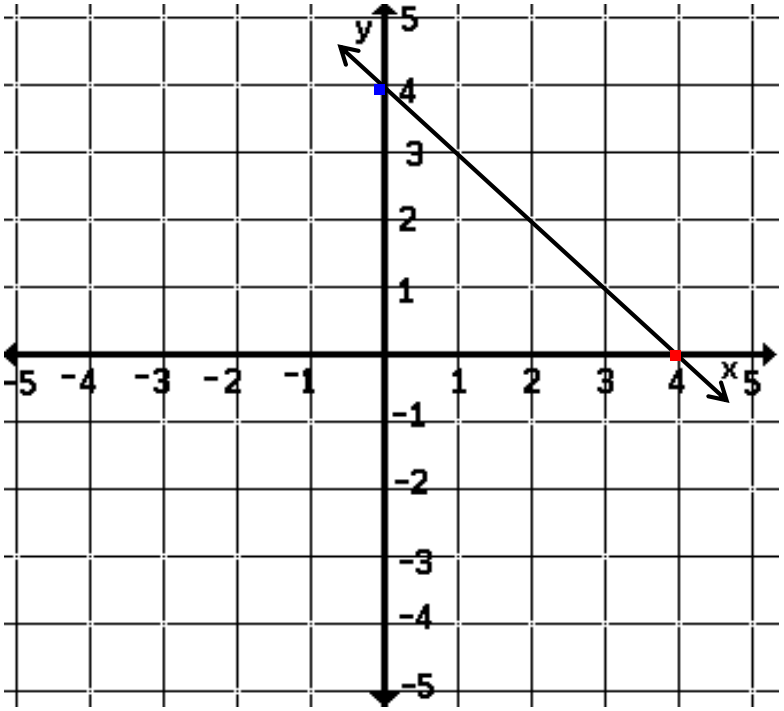


Using a Ski Jump to Illustrate Slope

Chapter 4 Introduction
Slope and Graphing Review

V. Write an Equation in Slope-Intercept Form Using the Graph

A.



- Find the *y*-intercept.

  y-intercept (b) = 4

- Calculate the slope using $\frac{rise}{run}$.

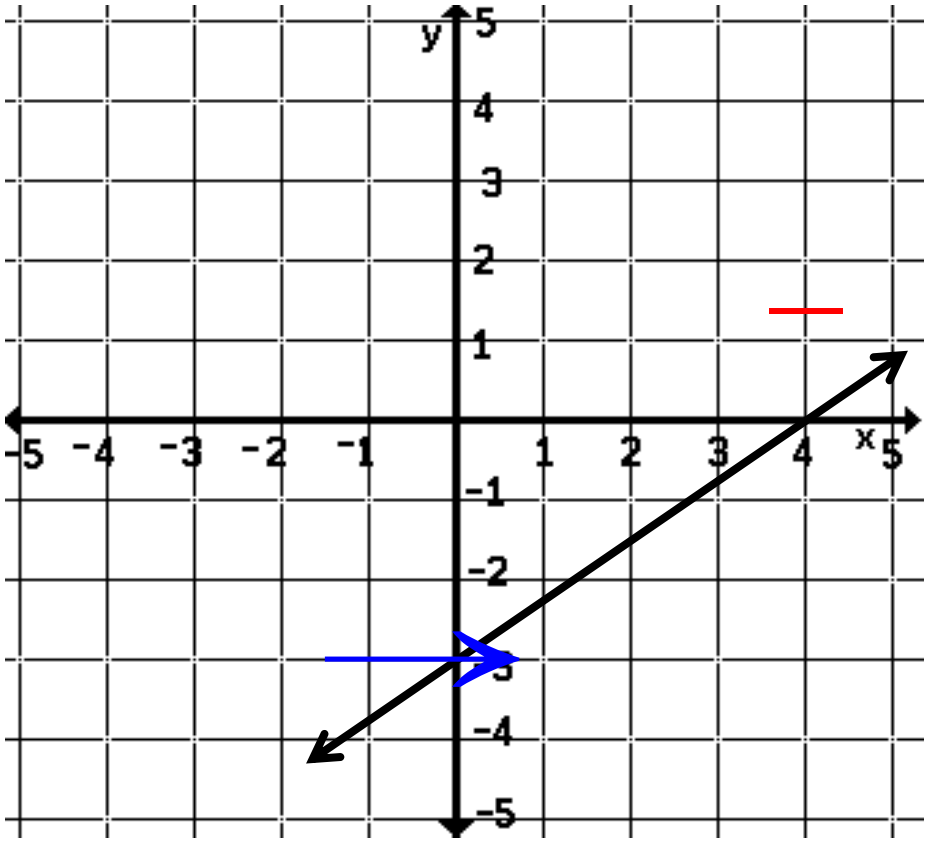
$$\frac{-4}{4} = -1$$

slope (m) = $\frac{rise}{run}$ = -1

- Use the slope-intercept form to write the equation: $y = mx + b$.

$$y = -1x + 4 \text{ or } y = -x + 4$$

B.



If there are NO points on the line:

- Where does the line cross the *y*-axis? This is the *y*-intercept.

  y-intercept (b) = -3

- Where does the line intersect the corner of a square?

- Use $\frac{rise}{run}$ to calculate the slope.

  slope (m) = $\frac{3}{4}$

- Use the slope-intercept form to write the equation: $y = mx + b$.

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

VI. Horizontal and Vertical Lines

HOY

Horizontal line ⟷
0 slope
y = #

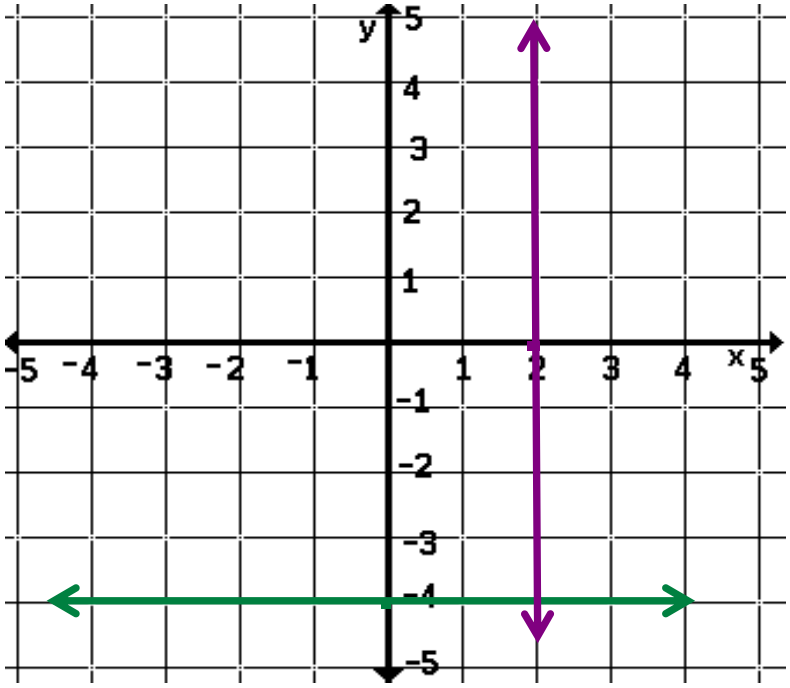
VUX

Vertical line ↕
Undefined slope
x = #

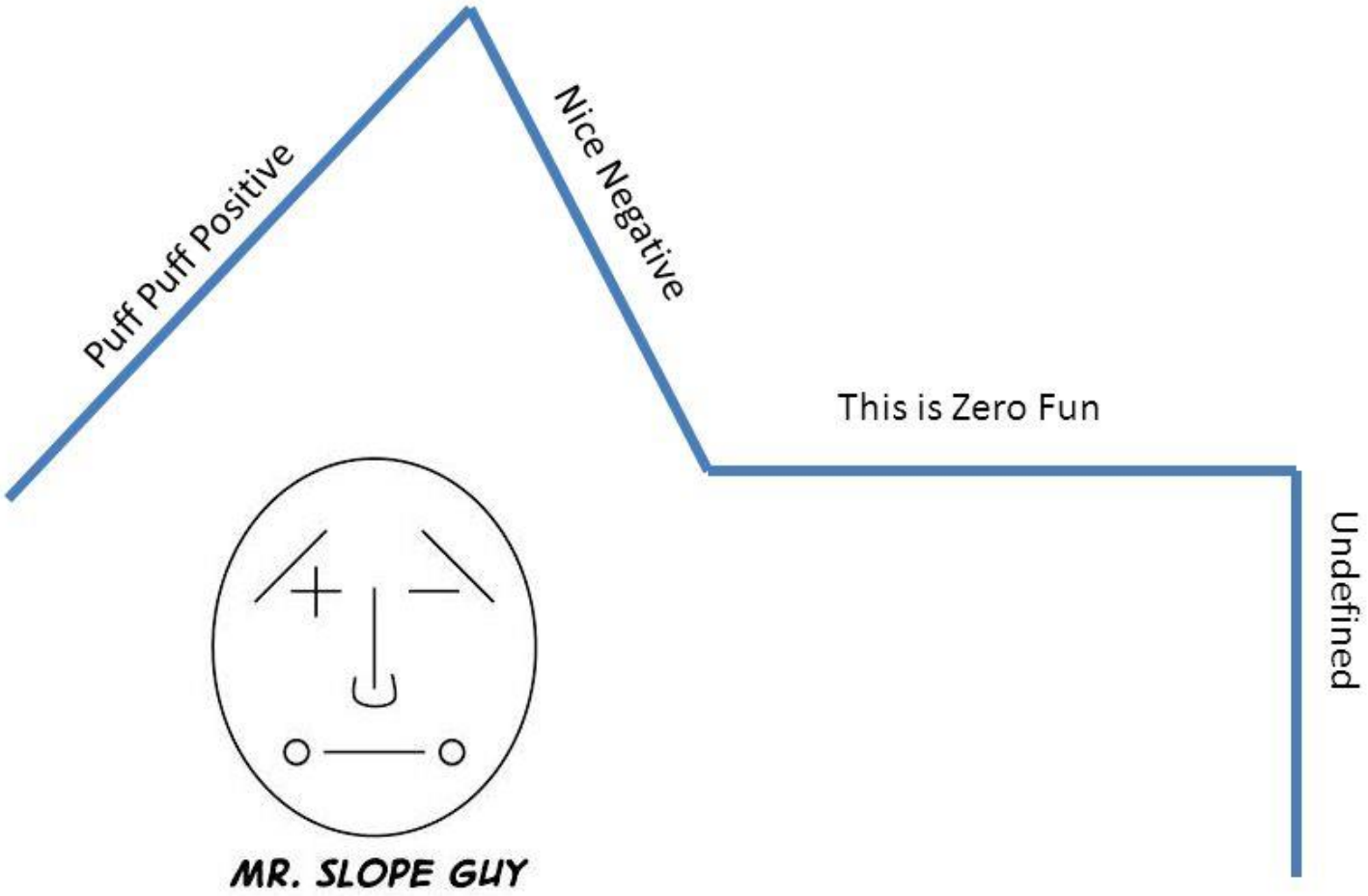
VII. Graph the Lines

$y = -4$ ¬ HOY

$x = 2$ ¬ VUX



Slope Dude's Journey



VIII. Convert Point-Slope to Slope-Intercept Form

$$y - y_1 = m(x - x_1)$$

A. Write an equation in slope-intercept form for the line that contains the point (5, 4) and has a slope of 2.

$y - 4 = 2(x - 5)$

$y - 4 = 2x - 10$

$+4 \qquad +4$

$y = 2x - 6$

B. Write an equation in slope-intercept form for the line that contains the point (1, -6) and has a slope of -3.

$y - (-6) = -3(x - 1)$

$y + 6 = -3x + 3$

$-6 \qquad -6$

$y = -3x - 3$

C. Write an equation in slope-intercept form for the line that contains the point (-4, 4) and has a slope of ½.

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

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

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

$+4 \qquad +4$

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

D. Write an equation in slope-intercept form for the line that contains the points (2, 4) and (-2, 6).

Find the Slope:

$$m = \frac{6 - 4}{-2 - 2} = \frac{2}{-4} = -\frac{1}{2}$$

Point-Slope ⊳ Slope-Intercept Form:

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

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

$$\underline{+4} \qquad \underline{+4}$$

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

E. Write an equation in slope-intercept form for the line that contains the points (-3, -2) and (-4, 1).

Find the Slope:

$$m = \frac{1 - (-2)}{-4 - (-3)} = \frac{3}{-1} = -3$$

Point-Slope ⊳ Slope-Intercept Form:

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

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

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

$$\underline{-2} \qquad \underline{-2}$$

$$y = -3x - 11$$

F. Write an equation in slope-intercept form for the line that contains the points (2, -4) and (0, 6).

Find the Slope:

$$m = \frac{6 - (-4)}{0 - 2} = \frac{10}{-2} = -5$$

Point-Slope ⊳ Slope-Intercept Form:

$$y - 6 = -5(x - 0)$$

$$y - 6 = -5x$$

$$\underline{+6} \qquad \underline{+6}$$

$$y = -5x + 6$$