

### 6.4 Slope-Intercept Form

= Slope = R.O.C.

$$= \text{rise} = \frac{\Delta y}{\text{run}} = \frac{\Delta y}{\Delta x}$$

$$= \frac{y_2 - y_1}{x_2 - x_1}$$

$$y = mx + b$$

y-intercept  
(where the line crosses the y axis)  
→ constant term

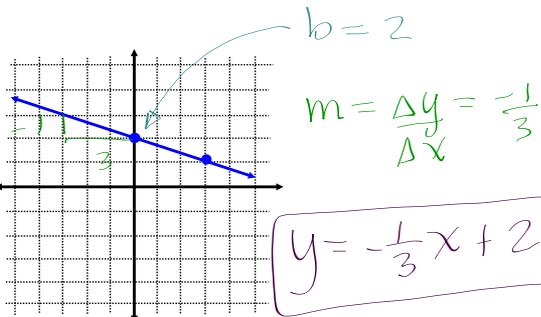
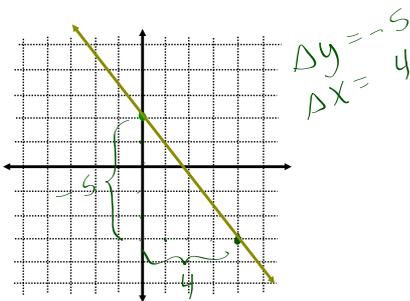
ex. A line passes through (0, 5) and has a slope of -3/4. Write the equation of this line.

b = 5  
y-int.

m = -3/4

$$\therefore y = mx + b \Rightarrow y = -\frac{3}{4}x + 5$$

Ex. Graph  $y = -\frac{5}{4}x + 2$  y-int.



ex. Write the equation of this line

ex. Tickets to a school dance cost \$5 and the organizers must pay \$300 for the DJ.

a) Write the equation that relates the profits (P) based on the number of ticket (x) sold.

$$P = 5x - 300$$

$$y = mx + b$$

b) What is the profit if 123 people come to the dance?

$$P(123) = 5(123) - 300$$

$$P(123) = 615 - 300$$

$$P(123) = 315$$

∴ The profit is \$315.

c) If the profits are \$350, how many tickets were sold?

$$350 = 5x - 300 + 300$$

$$\frac{650}{5} = \frac{5x}{5}$$

$$130 = x$$

∴ 130 tickets were sold.