

12, 19

$y - y_1 = m(x - x_1) \Rightarrow (x_1, y_1)$  a point on the line

#12. a)  $y + 3 = 2(x - 1)$

pt. (1, -3)

↳ graph C

quiz tomorrow  
6.3-6.5

19. G(-3, 11) and H(4, -3)

$m = \frac{-3 - 11}{4 - (-3)} = \frac{-14}{7} = -2$

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

$y - 11 = -2(x + 3)$

$y + 3 = -2(x - 4)$

d) write as  $y = mx + b$  ← do they have the same y-int?

$y - 11 = -2x - 6$

$y = -2x + 5$

$y + 3 = -2x + 8$

$y = -2x + 5$

20. D(-5, -3)

i)  $m = -\frac{4}{3} \Rightarrow$

$y + 3 = -\frac{4}{3}(x + 5)$

ii)  $m_{\perp} = \frac{3}{4} \Rightarrow$

$y + 3 = \frac{3}{4}(x + 5)$

## 6.6 General Form

\* The **general form** of a linear relation is an equation where all the terms are on the **left** side of the equal sign and all the coefficients as well as the constant term are **whole numbers**.

$$0 = Ax + By + C = 0$$

ex. Write in general form

a)  $y = -3x + 5$

$$3x + y - 5 = 0$$

$$0 = -3x - y + 5$$

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

$$\left(\frac{1}{2}x + y - 3 = 0\right) \times 2$$

$$x + 2y - 6 = 0$$

c)  $y + 2 = \frac{3}{2}(x - 4)$

$$y + 2 = \frac{3}{2}x - \frac{12}{2}$$

$$y + 2 = \frac{3}{2}x - 6$$

$$\left(0 = \frac{3}{2}x - y - 8\right) \times 2$$

$$0 = 3x - 2y - 16$$

Ex. Find the intercepts and graph:  $4x + y - 8 = 0$

plot the intercepts

x-int:  $y = 0$

$$4x + 0 - 8 = 0$$

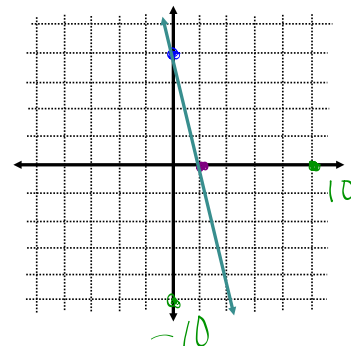
$$\frac{4x}{4} = \frac{8}{4}$$

$$x = 2 \rightarrow (2, 0)$$

y-int:  $x = 0$

$$4(0) + y - 8 = 0$$

$$y = 8 \rightarrow (0, 8)$$



Ex. Find the slope of  $4x - 3y - 12 = 0$  put into  $y = mx + b$   
 $\rightarrow$  must isolate  $y$

$$\frac{-3y}{-3} = \frac{-4x + 12}{-3}$$

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

$$\therefore m = \frac{4}{3}$$

ex. Peanuts cost \$2 per 100g and raisins cost \$1 per 100g. Dave has \$10 to purchase some of both. Represent this situation with an equation in general form graph it.

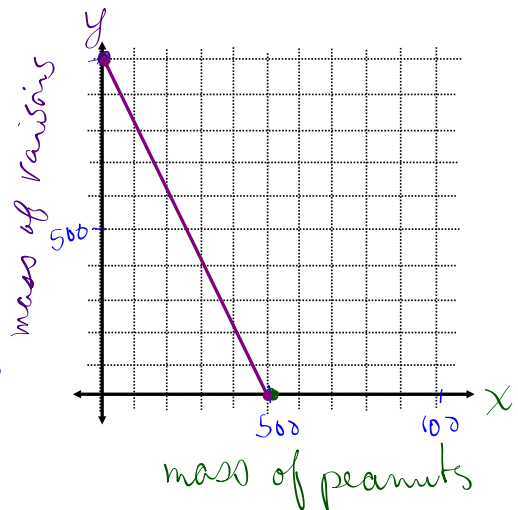
let  $x =$  mass of peanuts

$y =$  mass of raisins

x-int: spend 10\$ only on nuts

for \$10 I can get 500g

y-int: spend all 10\$ on raisins  
I can get 1000g



$$\therefore m = \frac{-1000}{500} = -2$$

$$\therefore y = mx + b \text{ becomes } \boxed{y = -2x + 1000}$$

now move all to one side

$$\boxed{2x + y - 1000 = 0}$$