

# KEY

HA2

$$1) y = \frac{7}{4}x - 4$$

$$2) 2x + 3y = -6$$

$$(0, -2)$$

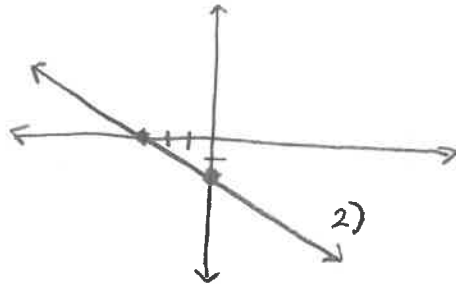
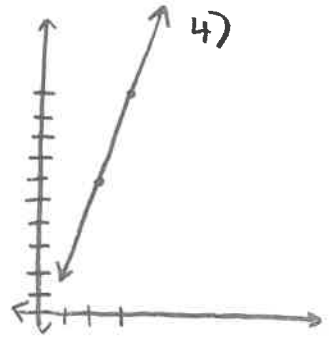
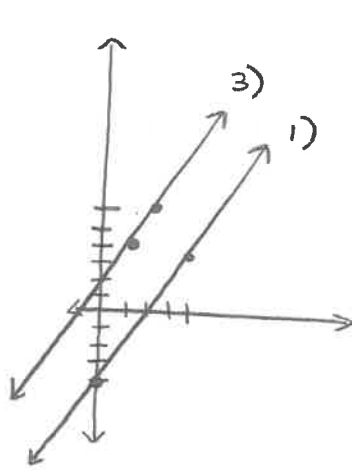
$$(-3, 0)$$

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

$$(1, 4) \quad m = 2$$

$$4) (y - 6) = 4(x + 8)$$

$$(2, 6) \quad m = 4$$



$$5) (-1, -1) \text{ \& } (3, 4) \quad m = \frac{4 - (-1)}{3 - (-1)} = \frac{5}{4}$$

$$y + 1 = \frac{5}{4}(x + 1)$$

$$\boxed{y = \frac{5}{4}x + \frac{1}{4}}$$

$$6) (-2, -1) \text{ \& } (0, 1) \quad m = \frac{1 - (-1)}{0 - (-2)} = 1$$

$$y - 1 = 1(x - 0)$$

$$y - 1 = x$$

$$-x + y = 1$$

$$\boxed{x - y = -1}$$

$$7) (3, 3) \text{ \& } (-1, 4) \quad m = \frac{4 - 3}{-1 - 3} = \frac{1}{-4}$$

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

$$8) |-4 + 5x| = 16$$

$$\swarrow$$

$$-4 + 5x = 16$$

$$5x = 20$$

$$\boxed{x = 4}$$

$$\searrow$$

$$-4 + 5x = -16$$

$$5x = -12$$

$$\boxed{x = -\frac{12}{5}}$$

$$9) 5 - 8|-2n| = -75$$

$$-8|-2n| = -80$$

$$|-2n| = 10$$

$$\swarrow$$

$$-2n = 10$$

$$\boxed{n = -5}$$

$$\searrow$$

$$-2n = -10$$

$$\boxed{n = 5}$$

$$10) \left| \frac{4x+3}{5} \right| = 2$$

$$\swarrow$$

$$\frac{4x+3}{5} = 2$$

$$4x+3 = 10$$

$$4x = 7$$

$$\boxed{x = 7/4}$$

$$\searrow$$

$$\frac{4x+3}{5} = -2$$

$$4x+3 = -10$$

$$4x = -13$$

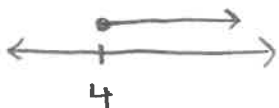
$$\boxed{x = -13/4}$$

$$11) 3(6a-8) \geq 48$$

$$6a-8 \geq 16$$

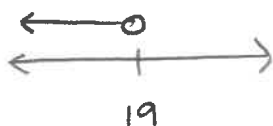
$$6a \geq 24$$

$$a \geq 4$$



$$12) \frac{-10+m}{3} < 3 \rightarrow -10+m < 9$$

$$m < 19$$



$$13) |3x-4| > 6$$

$$\swarrow$$

$$3x-4 > 6$$

$$3x > 10$$

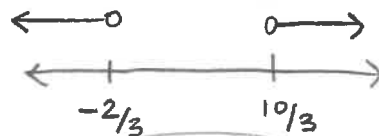
$$x > \frac{10}{3}$$

$$\searrow$$

$$3x-4 < -6$$

$$3x < -2$$

$$x < -\frac{2}{3}$$



$$14) 3x+5 = \frac{7}{3}x-2$$

$$9x+15 = 7x-6$$

$$2x = -21$$

$$x = \boxed{-21/2}$$

$$15) \frac{3}{2}x-7 = 4 \rightarrow 3x = 22$$

$$3x-14 = 8 \rightarrow \boxed{x = 22/3}$$

$$16) \left( \frac{3x}{4} - \frac{5x+3}{2} = \frac{7}{3} \right)^{x12}$$

$$9x - 30x - 18 = 28$$

$$-21x = 46$$

$$x = \boxed{\frac{-46}{21}}$$

$$17) 4 \rightarrow \text{cars} \quad x \rightarrow \#/\text{bus}$$

$$\hookrightarrow \text{rest} \rightarrow 9 \text{ buses}$$

$$9x + 4 = 472$$

$$9x = 468 \rightarrow \boxed{x = 52}$$

$$18) \$25.64 \text{ after tax}$$

$$\hookrightarrow 6\%$$

$$1.06x = 25.64$$

$$\boxed{x \approx \$24.19}$$

# KEY Challenge Problems

$$19) |x-2| - |x+2| > x$$

$$|x-2| > x + |x+2|$$

$$x-2 < -x-x-2$$

$$x-2 > x+x+2$$

$$x-2 < -2x-2$$

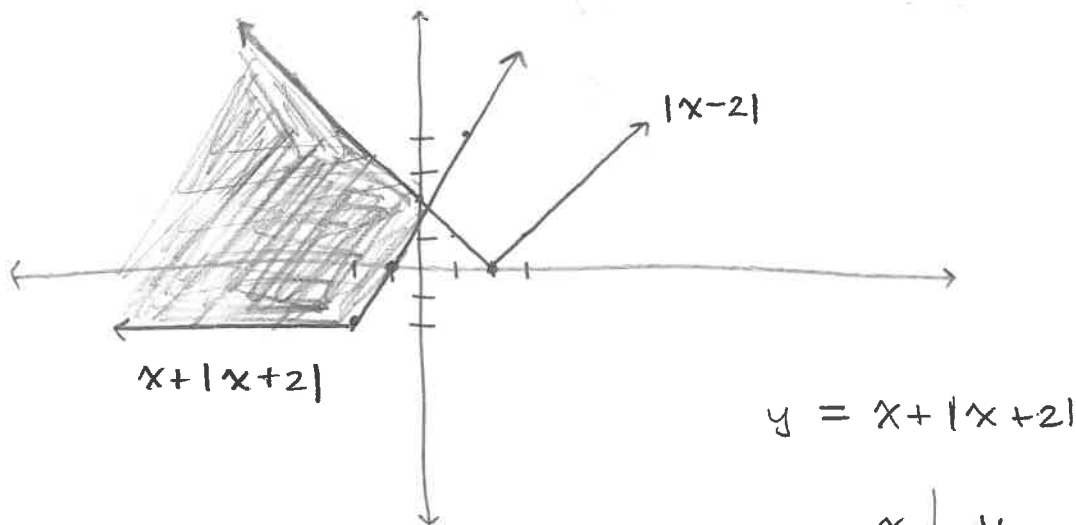
$$x-2 > 2x+2$$

$$3x < 0$$

$$x < -4$$

$$\boxed{x < 0}$$

Can also graph:



20)

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

$$d^2 = (x_1 - x_2)^2 + (y_1 - y_2)^2$$

$$d^2 - (x_1 - x_2)^2 = (y_1 - y_2)^2$$

$$y_1 - y_2 = \sqrt{d^2 - (x_1 - x_2)^2}$$

$$\boxed{y_1 = \sqrt{d^2 - (x_1 - x_2)^2} + y_2}$$

x	y
0	2
1	4
-1	0
-2	-2
-3	-2
-4	-2

