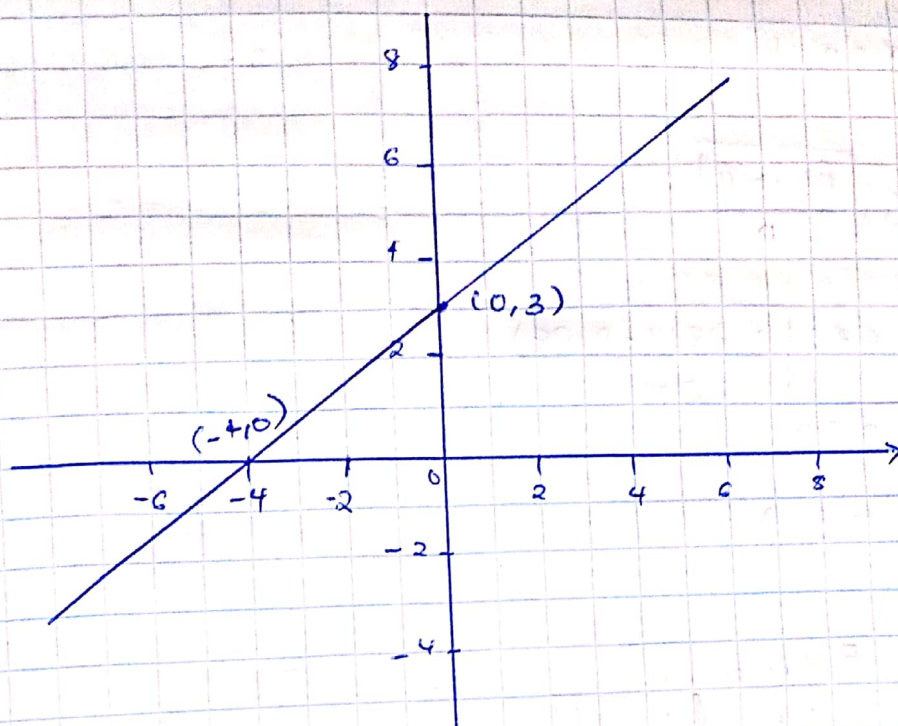


1.



x	y
0	3
-4	0
4	6

$$2. \frac{x-3}{x+1} \geq 0$$

$$x-3=0 \\ x=3$$

$$x+1=0 \\ x=-1$$

	$x-3$	$x+1$	$\frac{(x-3)}{(x+1)}$
$x < -1$	-	-	$\oplus$
$x = -1$	-	0	∞
$-1 < x < 3$	-	+	$\ominus$
$x = 3$	0	+	$\oplus$
$x > 3$	+	+	$\oplus$

The intervals where the function ≥ 0

$$x < -1, \quad x = 3, \quad x > 3$$

$$(-\infty, -1) \cup [3, \infty)$$

$$3. C(x) = 0.15x + 4$$

$$(a) C(100) = 0.15(100) + 4 = 19 \text{ dollars}$$

$$(b) C(x) = 0.15x + 4 = 7$$

$$0.15x = 3$$

$$x = \frac{3}{0.15} = 20 \text{ minutes}$$

4. (a) $(-1, 4), (5, 2)$

$$m = \frac{2-4}{5-(-1)} = \frac{-2}{6} = -\frac{1}{3}$$

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

$$y - 2 = -\frac{1}{3}(x - 5)$$

$$y = -\frac{1}{3}x + \frac{5}{3} + 2$$

$$y = -\frac{1}{3}x + \frac{11}{3}$$

(b) $(3, -2), (3, 1)$

$$m = \frac{1 - (-2)}{3 - 3} = \frac{3}{0} = \infty$$

It is a vertical line

$$x = 3$$

(c) $x - 2y + 6 = 0$ $(-4, 3)$

$$2y = x + 6$$

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

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

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

$$y - 3 = \frac{1}{2}(x + 4)$$

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

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

$$(d) \quad y = 4 \quad (5, -2)$$

$$m = 0$$

$$y + 2 = 0(x - 5)$$

$$y + 2 = 0$$

$$y = -2$$

$$(e) \quad 3x + y - 7 = 0 \quad (1, -1)$$

$$y = -3x + 7$$

$$m = \frac{1}{3}$$

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

$$y = \frac{1}{3}x - \frac{1}{3} - 1$$

$$y = \frac{1}{3}x - \frac{4}{3}$$

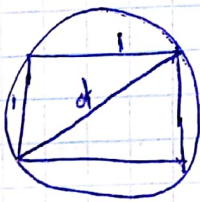
5. (a)

$$\text{Area of square} = L \times W = 8 \times 8 = 64$$

$$\text{Area of circle} = \pi r^2 = \pi \times 4^2 = 16\pi$$

$$\text{Area of shaded area} = 64 - 16\pi$$

(b)



$$d = \sqrt{1^2 + 1^2} = \sqrt{2}$$

$$\text{Area of circle} = \pi r^2 = \pi \left(\frac{\sqrt{2}}{2}\right)^2 = \frac{1}{2}\pi$$

$$\text{Area of square} = 1 \times 1 = 1$$

$$\text{Area of shaded area} = \frac{\pi}{2} - 1$$

6. Certificate of deposit = x

Bond = y

$$0.04x + 0.06y = 218$$

$$x + y = 4000$$

$$y = 4000 - x$$

$$0.04x + 0.06(4000 - x) = 218$$

$$0.04x + 240 - 0.06x = 218$$

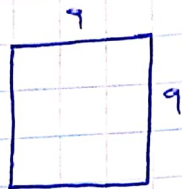
$$-0.02x = -22$$

$$x = 1100$$

$$y = 4000 - 1100 = 2900$$

Bond = \$ 2900

7.



$$V = L \times W \times H$$

$$= (9 - 2x)(9 - 2x)(x)$$

$$= x(9 - 2x)^2 \text{ cubic inches}$$

8. $2x + 2y = 5$
 $4x + y = 1$

$$y = 1 - 4x$$

$$2x + 2(1 - 4x) = 5$$

$$2x + 2 - 8x = 5$$

$$2 - 6x = 5$$

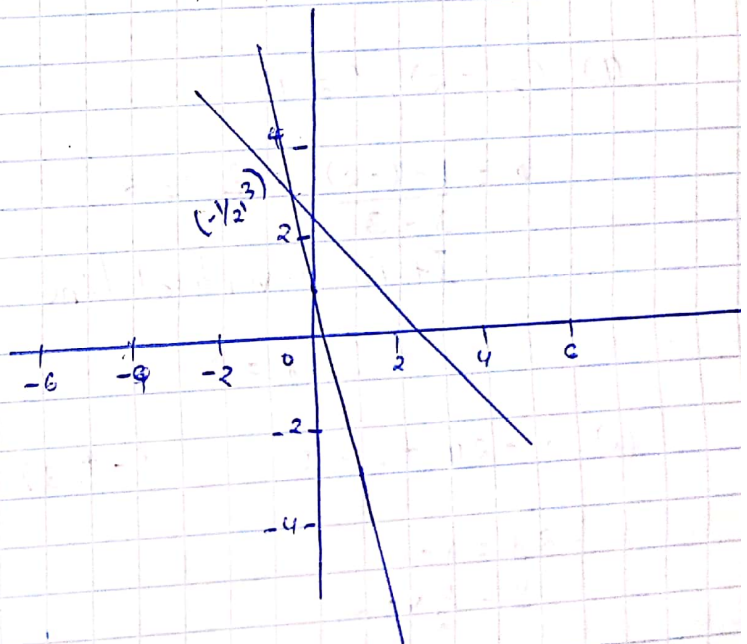
$$-6x = 3$$

$$x = -\frac{1}{2}$$

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

$$= 1 + 2 = 3$$

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



9. $3x = \frac{a - 2b}{k + a}$

$$3x(k + a) = a - 2b$$

$$3xk + 3xa = a - 2b$$

$$3xa - a = -3xk - 2b$$

$$a(3x - 1) = -3xk - 2b$$

$$a = \frac{-3xk - 2b}{3x - 1}$$

10. $f(x) = \sqrt{x^2 - x - 6}$

$$f(x) \geq 0$$

$$x^2 - x - 6 \geq 0$$

$$(x+3)(x-2) \geq 0$$

$$x \leq -2 \quad \text{or} \quad x \geq 3$$

$$\text{Domain} = (-\infty, -2] \cup [3, \infty)$$