

HW23

IA review

$$\begin{aligned}
 1. a) \quad 0 &= 4x - 7 & y &= 4(0) - 7 \\
 7 &= 4x & y &= -7 \\
 \frac{7}{4} &= x & & \\
 (\frac{7}{4}, 0) & & & (0, -7)
 \end{aligned}$$

$$\begin{aligned}
 3. b) \quad r &= \sqrt{(5+3)^2 + (1-2)^2} \\
 r &= \sqrt{64+1} \\
 r &= \sqrt{65} \approx 8.1
 \end{aligned}$$

$$(x+3)^2 + (y-2)^2 = 65$$

$$\begin{aligned}
 b) \quad 0 &= x^2 - 5x - 14 & y &= 0^2 - 5(0) - 14 \\
 0 &= (x-7)(x+2) & y &= -14 \\
 x &= 7, -2 & & \\
 (7, 0) \text{ ; } & (-2, 0) & & (0, -14)
 \end{aligned}$$

$$\begin{aligned}
 c) \quad 4x - 9(0) &= 22 \\
 4x &= 22 \\
 x &= \frac{22}{4} = \frac{11}{2}
 \end{aligned}$$

$$(\frac{11}{2}, 0)$$

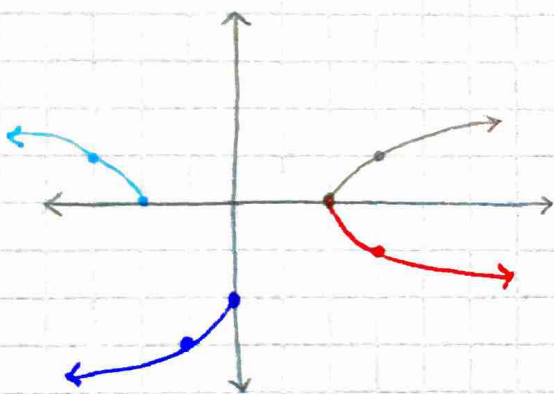
$$\begin{aligned}
 4(0) - 9y &= 22 \\
 -9y &= 22 \\
 y &= -\frac{22}{9}
 \end{aligned}$$

$$(0, -\frac{22}{9})$$

$$\begin{aligned}
 4a) \quad 4x + 12 - 2x &= 5x - 10 \\
 2x + 12 &= 5x - 10 \\
 22 &= 3x
 \end{aligned}$$

$$\boxed{\frac{22}{3} = x}$$

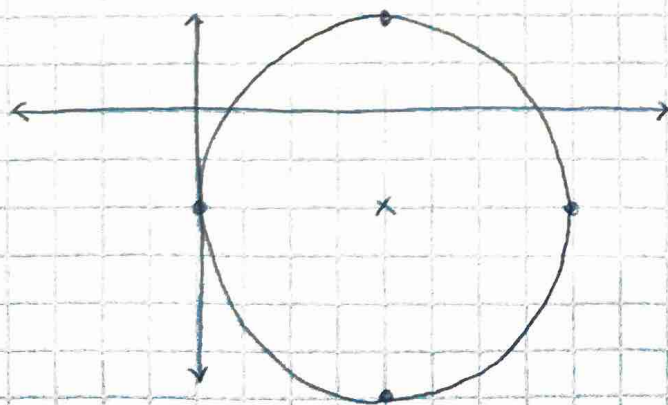
2.



$$\begin{aligned}
 b) \quad 4x - 3 &= 4x + 24 + 2x \\
 4x - 3 &= 4x + 24 \\
 -3 &= 24 \\
 \boxed{\text{no solutions}}
 \end{aligned}$$

$$\begin{aligned}
 c) \quad 2x + 4 &= 49 \\
 2x &= 45 \\
 \boxed{x = \frac{45}{2}}
 \end{aligned}$$

$$3. a) (x-4)^2 + (y+2)^2 = 16$$



$$4.d) \left(\frac{4}{(x-10)(x-4)} = \frac{1}{x-10} + \frac{10}{x-4} \right) (x-10)(x-4)$$

$$4 = 1(x-4) + 10(x-10)$$

$$4 = x-4 + 10x-100$$

$$4 = 11x-104$$

$$108 = 11x$$

$$\boxed{x = 9.8}$$

$$7.c) a \cdot c = -90$$

$$b = 1$$

$$0x^2 + 10x - 9x - 15 = 0$$

$$2(3x+5) - 3(3x+5) = 0$$

$$(2x-3)(3x+5) = 0$$

$$\boxed{x = 3/2, -5/3}$$

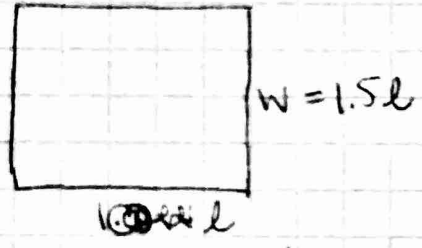
$$4.e) \left(\frac{1}{x-3} + \frac{1}{x+3} = \frac{10}{(x+3)(x-3)} \right) (x+3)(x-3)$$

$$x+3 + x-3 = 10$$

$$2x = 10$$

$$\boxed{x = 5}$$

5. a)



$$P = 2l + 2(1.5l)$$

$$90 = 2l + 3l$$

$$90 = 5l$$

$$18 = l$$

b) 18 x 12 ft

$$6. \frac{88 + 70 + 91 + 83 + 85 + 93 + x}{7} = 87$$

$$\frac{510 + x}{7} = 87$$

$$510 + x = 609$$

$$\boxed{x = 99}$$

$$7.a) (x+9)(x-3) = 0$$

$$\boxed{x = -9, 3}$$

$$b) (x+7)(x+2) = 0$$

$$\boxed{x = -7, -2}$$

8. a) x-axis

$$-y = 3x^2 - 4$$

$$y = -3x^2 + 4 \quad \underline{\text{no}}$$

y-axis

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

$$y = 3x^2 - 4 \quad \checkmark$$

origin

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

$$-y = 3x^2 - 4$$

$$y = -3x^2 - 4 \quad \underline{\text{no}}$$

b) x-axis

$$2(x)(-y) = 13$$

$$-2xy = 13 \quad \underline{\text{no}}$$

y-axis

$$2(-x)(y) = 13$$

$$-2xy = 13 \quad \underline{\text{no}}$$

origin

$$2(-x)(-y) = 13$$

$$2xy = 13 \quad \checkmark$$

c) x-axis

$$x^2 + 3(-y)^2 = 13$$

$$x^2 + 3y^2 = 13 \quad \checkmark$$

y-axis

$$(-x)^2 + 3y^2 = 13$$

$$x^2 + 3y^2 = 13 \quad \checkmark$$

origin

$$(-x)^2 + 3(-y)^2 = 13$$

$$x^2 + 3y^2 = 13 \quad \checkmark$$