

VI/13 HW p-10 1-4, 6, 8, 9, 11 ; p.2 3, 4, 6, 8

p.10 1. set(a) and(d) are functions b/c there is only 1 y value for each x value
 in set(b) there are 2 y values when $x=1, -3$ and 0
 " " (c) " " " " " " " " $x=0, 4$ and 1

2. The vert. line test shows that (c), (e) are the only functions

$$3. \text{ sub } x = -6$$

$$\begin{array}{l|l}
 y = x^2 - 5x & x = y^2 - 5y \\
 = (-6)^2 - 5(-6) & -6 = y^2 - 5y \\
 = 36 + 30 & 0 = y^2 - 5y + 6 \\
 = 66 & 0 = (y-3)(y-2)
 \end{array}$$

∴ there is only
1 y value when
 $x = -6$, it is
a function.

\therefore When $x = -6$, $y = 3$ and 2 , so it is not a function.

6. $y=3$ is a horizontal line
and is a function.

$x=3$ is a vert. line and is not a function

$$8 \text{ a) i) } \underline{\text{sub } x=0}$$

$$3x + 4y = 5$$

$$\underline{\text{sub } x = -2}$$

$$\begin{aligned} 3x + 4y &= 5 \\ -6 + 4y &= 5 \\ 4y &= 11 \\ y &= \frac{11}{4} \end{aligned}$$

$$\text{ii) } \begin{array}{l} x=0 \\ x^2+y^2=4 \\ y=\pm 2 \end{array}$$

$$\begin{aligned}x &= -2 \\4 + y^2 &= 4 \\y &= 0\end{aligned}$$

$$\text{iii) } \begin{array}{l} x=0 \\ x^2+y=2 \\ y=2 \end{array} \quad \begin{array}{l} x=-2 \\ 4+y=2 \\ y=-2 \end{array}$$

$$\begin{aligned}x &= 0 \\z^2 + y &= z \\y &= z\end{aligned}$$

$$\begin{array}{l} x = -2 \\ 4 + y = 2 \\ \hline y = -2 \end{array}$$

b) Relations (i) and (iii) appear to be functions

c) I could verify by sketching/graphing and applying the vert. line test.

9. a) is a radical function

b) is a line  $y = -x + 2$

c) is a circle $3x^2 - 4y^2 = 12$

d) is a parabola

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and \therefore only (c) is not a function

11. a) Olwen earns \$400/wk + 5% commission on sales would be linear $E = 0.05x + 400$ and is a function

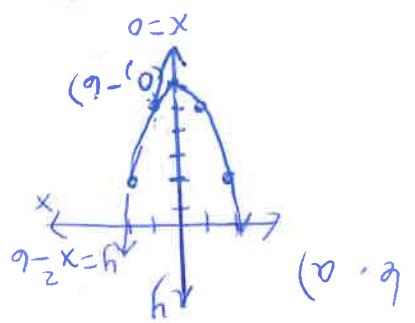
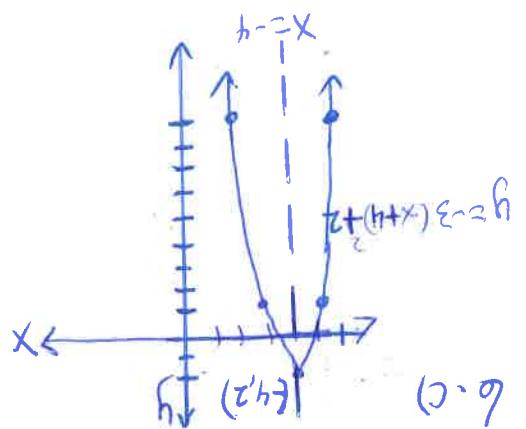
b) Brian walks 5km/h is the equⁿ $D = 5x$ which is linear and a function and is a function

b) Brian walks 3 km/h is the equation for distance = rate * time
c) The relation between student's ages and # credits earned is not a function, a 15 yr old could have 8, 9, 10 and 11 credits

$$8. \quad a) \quad x^2 - 5x + 6 = 0$$

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

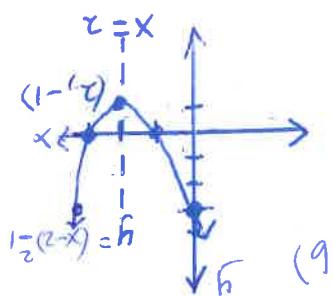
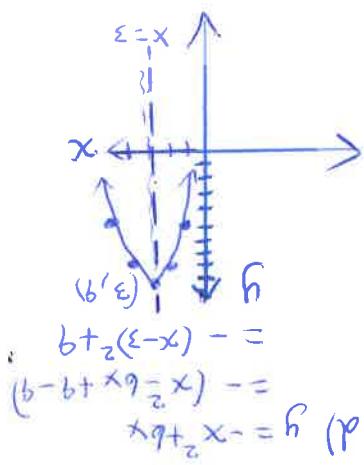
$$x = 3, 2$$



$$b) \quad 3x^2 - 5x + 6 = 0$$

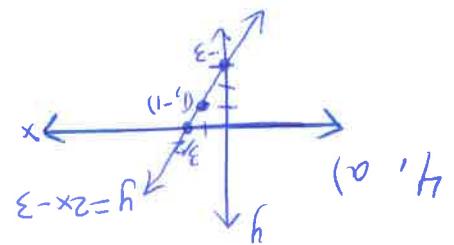
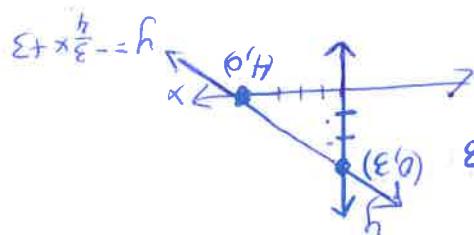
$$x_1 = \frac{5 + \sqrt{13}}{6}$$

$$x_2 = \frac{5 - \sqrt{13}}{6}$$



$$b) \quad 3x + 4y = 12$$

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



$$x = 5$$

$$y = -3$$

$$10 = 5x - 8$$

$$5x = 18$$

$$x = \frac{18}{5}$$

$$\frac{12}{12}y - \frac{9}{12} = -\frac{36}{12}$$

$$y = -3$$

$$b) \quad -2(x-3) = 2(-4x)$$

$$-2x + 6 = -8x$$

$$6x = -6$$

$$x = -1$$

$$c) \quad \frac{4}{x-2} = \frac{3}{2x+1}$$

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

$$8x + 4 = 3x - 6$$

$$5x = -10$$

$$x = -2$$

$$3. \quad a) \quad 5x - 8 = 7$$

$$5x = 15$$

$$x = 3$$

P.2 #3, 4, 6, 8