

Solutions

(1)

A Functions

a) vertex $\rightarrow (2, -4)$

x_{int}	y_{int}
$0 = 3 x-2 - 4$	$y = 3 -4 - 4$

$4 = 3 x-2 $	$y = 6 - 4$
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$y = -2$

Case 1

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

$$4 = 3x - 6$$

$$10 = 3x$$

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

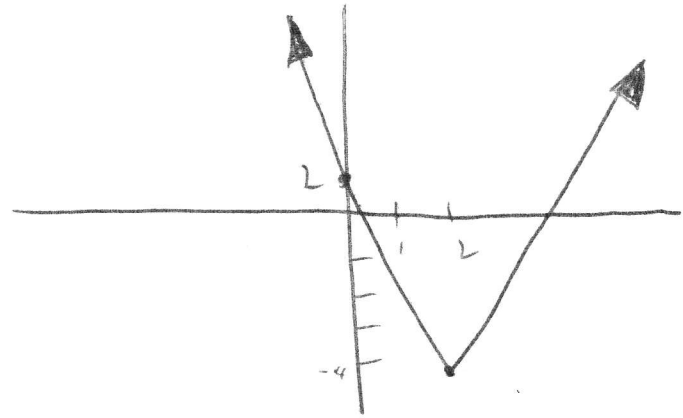
Case 2

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

$$4 = -3x + 6$$

$$3x = 2$$

$$x = \frac{2}{3}$$

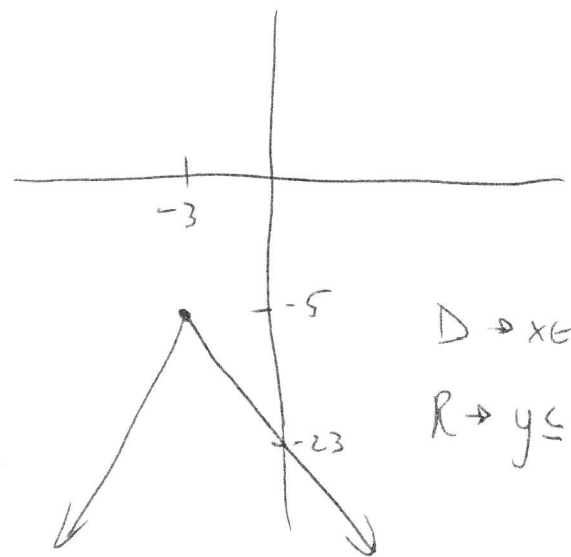


$D \rightarrow x \in \mathbb{R}$

$R \rightarrow y \geq -4, y \in \mathbb{R}$

b) vertex $\rightarrow (-3, -5)$

x_{int}	y_{int}
None	$y = -6 3 - 5$
	$y = -18 - 5$
	$y = -23$



$D \rightarrow x \in \mathbb{R}$

$R \rightarrow y \leq -5, y \in \mathbb{R}$

(2)

A | c)

vertex $\rightarrow (-4, 2)$

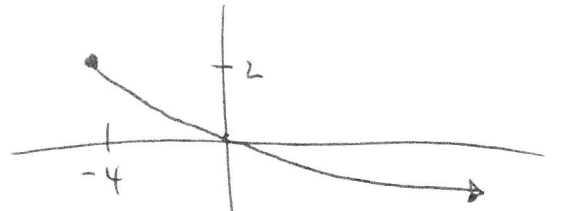
x-int	y-int
$0 = -\sqrt{x+4} + 2$	$y = -\sqrt{4} + 2$
$\sqrt{x+4} = 2$	$y = -2 + 2$
$x+4 = 4$	$y = 0$
$x = 0$	

verify $x=0$

$$0 = -\sqrt{0+4} + 2$$

$$0 = -2 + 2$$

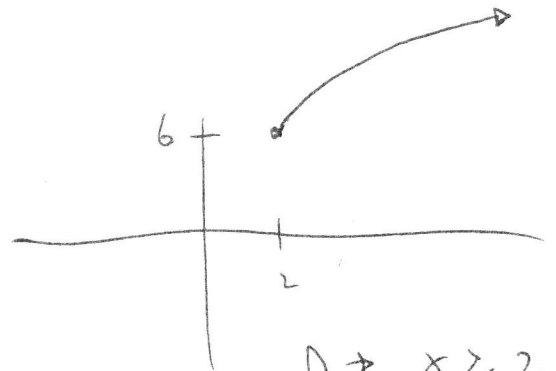
$$0 = 0$$



$D \rightarrow x \geq -4, x \in \mathbb{R}$
 $R \rightarrow y \leq 2, y \in \mathbb{R}$

d) vertex $\rightarrow (2, 6)$

x-int	y-int
None	None



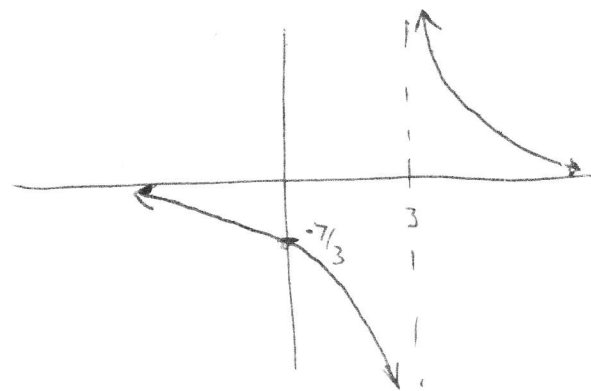
$D \rightarrow x \geq 2, x \in \mathbb{R}$
 $R \rightarrow y \geq 6, y \in \mathbb{R}$

2 a)

x-int	y-int
$0 = \frac{7}{x-3}$	$y = \frac{7}{-3}$
$0 = 7$	
No x-int	

V.A. $\rightarrow x-3 = 0$
 $x \neq 3$

H.A. $\rightarrow x-3 \neq 0$
 $y = 0$

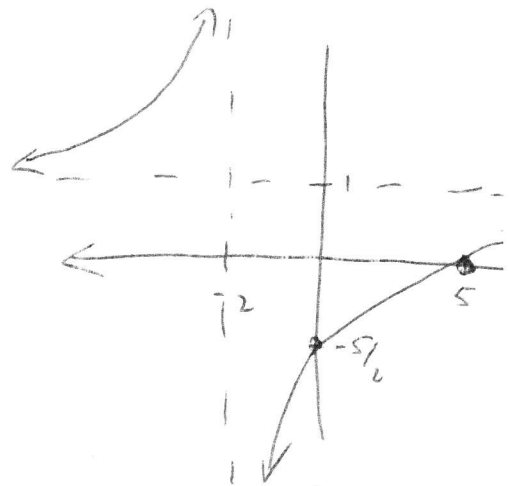


$D \rightarrow x \in \mathbb{R}, x \neq 3$
 $R \rightarrow y \in \mathbb{R}, y \neq 0$

A 2b)

3

x_{int}	y_{int}
$0 = \frac{x+5}{x+2}$	$y = \frac{-5}{2}$
$0 = x - 5$	
$5 = x$	



V.A $\rightarrow x+2=0$
 $x = -2$

H.A $\rightarrow x+2 \overline{) x-5}$
 $y = 1$

$D \rightarrow x \in \mathbb{R}, x \neq -2$

$R \rightarrow y \in \mathbb{R}, y \neq 1$

3 a) $(x-3)(x^2+3x+9)$

c) $((x-5)-y)((x+5)^2+y(x-5)+1)$

b) $y(1+y)(1-y+y^2)$

d) $(x-(y+2))(x^2+x(y+2)+(y+1))$