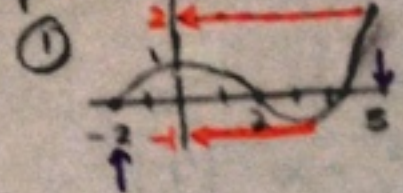


#120

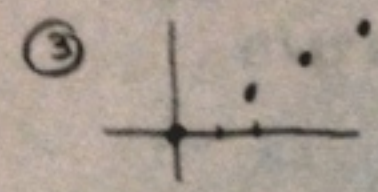
p. 122



It is a function (it passes the vertical line test)

Domain $-2 \leq x \leq 5$

Range: $-1 \leq y \leq 2$

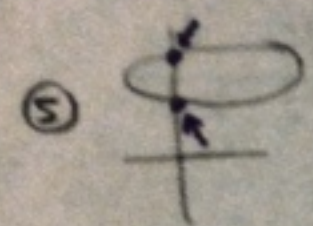


- (0,0)
- (2,1)
- (4,2)
- (6,3)

$D = \{0, 2, 4, 6\}$

$R = \{0, 1, 2, 3\}$

It's a function (passes VLT)



not a function - doesn't pass VLT

optional

optional

$$x^2 + y^2 = 1 \rightarrow y^2 = 1 - x^2 \rightarrow y = \pm \sqrt{1 - x^2}$$

This is a circle w/ center (0,0) & radius 1



It's not a function because it doesn't pass the VLT.

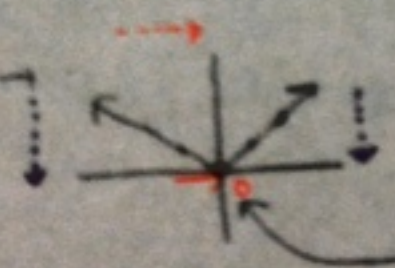
For every x value between -1 & 1, there are 2 y values.

④ $f(x) = \frac{1}{x} \rightarrow$ Fraction denominator $\neq 0$
 $\rightarrow x \neq 0$

⑤ $g(x) = \frac{1}{x-9} \rightarrow x-9 \neq 0$ or $x \neq 9$

⑥ $\frac{3x}{x^2-4} \rightarrow x^2-4 \neq 0 \rightarrow x^2 \neq 4 \rightarrow x \neq \pm 2$

⑦ $f(x) = |x|$



vertex (0,0)
 $D =$ all real $\neq c$
 $R = y \geq 0$
 Zeros: 0.

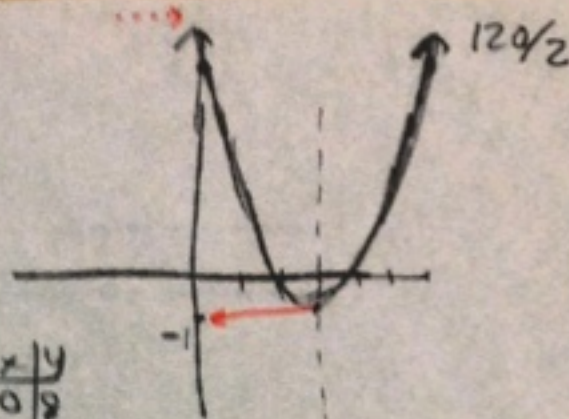
P123

⑫ $f(x) = x^2 - 6x + 8$

AOS: $x = \frac{-(-6)}{2(1)} = 3$

Vertex: $f(3) = 3^2 - 6(3) + 8 = -1$
 $\rightarrow (3, -1)$

x	y
0	8
6	8

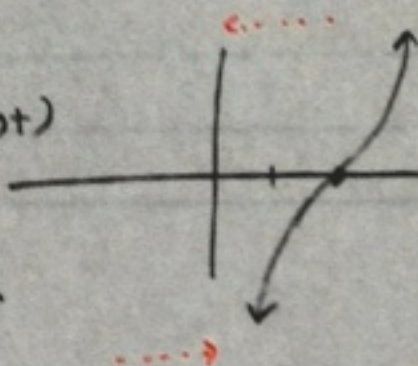


Range $y \geq -1$

Zeros: $x^2 - 6x + 8 = 0$
 $(x-4)(x-2) = 0 \rightarrow x = 4, 2$

⑬ $f(t) = (t-2)^3$
 zeros: 2 (triple root)
 end behavior

range: all real #s

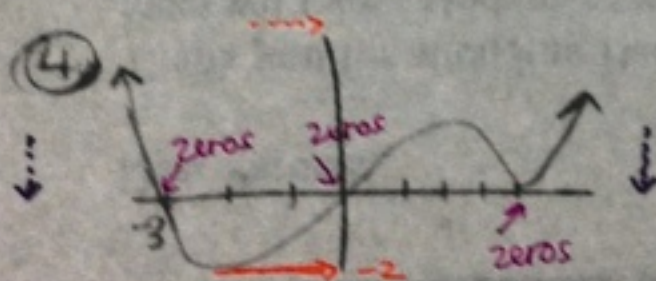


p122 08

optional \rightarrow ① $f(x) = \frac{4}{x-2} \rightarrow$ denominator $\neq 0$
 $x-2 \neq 0 \rightarrow x \neq 2$

\rightarrow ② $g(t) = \sqrt{t} \rightarrow$ can't take root of neg #
 $\rightarrow t \geq 0$

\rightarrow ③ $h(s) = \sqrt{s-4} \rightarrow s-4 \geq 0 \rightarrow s \geq 4$



Domain all real #s

Range: $y \geq -2$

Zeros: $-3, 0, 4$

PLUS Pg. 122 WE: 1-5 (odd); 9-15 (odd)

1-4: Find the domain and zeros.

1. $f(x) = \frac{x-3}{x^2-3x+2}$

denominator $\neq 0$

$x^2-3x+2 \neq 0$
 $(x-1)(x-2) \neq 0 \rightarrow x \neq 1; x \neq 2$

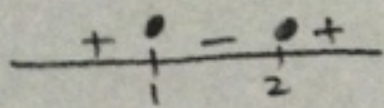
$D: x \neq 1; x \neq 2$

Fraction = 0 if numerator = 0

$\rightarrow x-3=0 \rightarrow \boxed{\text{zeros} = 3}$

2. $f(x) = \sqrt{x^2-3x+2}$

$x^2-3x+2 \geq 0 \rightarrow (x-1)(x-2) \geq 0$



$D: x \geq 2 \text{ or } x \leq 1$

zeros: $\sqrt{x^2-3x+2} = 0 \rightarrow x^2-3x+2 = 0$

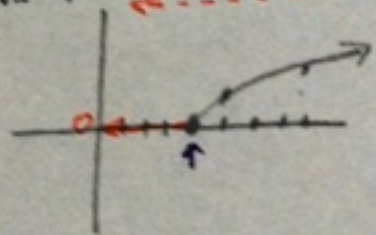
$(x-1)(x-2) = 0$

$x=1 \quad x=2$

3-5: Sketch the graph. Tell if it's a function. Then find the domain, range and zeros

3. $f(x) = \sqrt{x-4}$

x	4
4	0
5	1
8	2



$D: x \geq 4$

$R: y \geq 0$

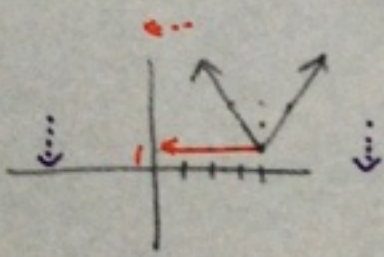
It's a function (passes VLT)

zeros: $\sqrt{x-4} = 0$

$x-4=0 \rightarrow x=4$

4. $f(x) = 2|x-4|+1$

Vertex (4,1)



$D: \text{all real \#s}$

$R: y \geq 1$

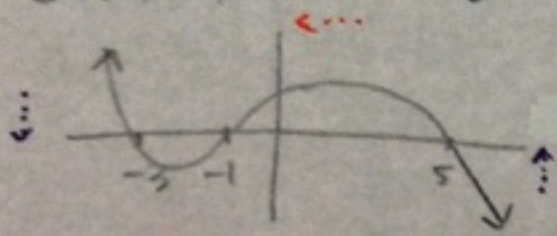
zeros: none.

Doesn't intersect x-axis

5. $f(x) = -4(x-5)(x+1)(x+3)$

zeros: 5, -1, -3 (single roots)

end behavior ↘ ↙



$D: \text{all real \#s}$

$R: \text{all real \#s}$