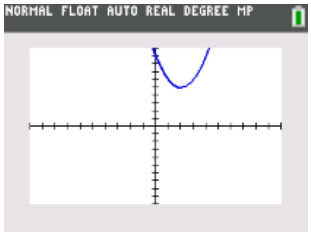
Quiz 1.1 to 1.3 Review Name: _____ Period: _____

1. Find the domain and range of the following functions.

$h(x) = (x-2)^2 + 5$



D: $(-\infty, \infty)$

R: $[5, \infty)$

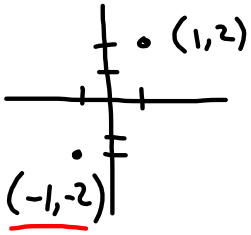
$k(x) = \frac{1}{\sqrt{9-x^2}}$

D: $(3, -3)$

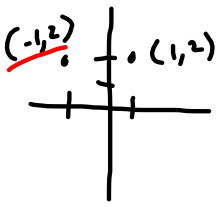
R: $(0, \infty)$

2. Suppose the point (1,2) lies on a graph of an odd function. Determine a second point on the graph. How would your answer change if the function was even?

odd $(1,2) \rightarrow (-1,-2)$



EVEN $(1,2) \rightarrow (-1,2)$

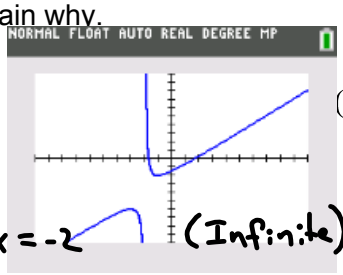


3. Determine whether each of the following are continuous or discontinuous. If it is discontinuous explain why.

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

$x+2=0$

$x=-2$

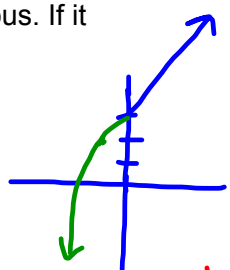


D: discontinuous @ $x=-2$ (Infinite)

$(x) = \begin{cases} 2x+3 & x>0 \\ 3-x^2 & x \le 0 \end{cases}$

(0,3)

(0,3)



continuous. no break

4. Determine the horizontal and vertical asymptotes of the following:

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

vert $x-4=0$

$x=4$

horiz $\frac{3x}{x}$

$y=3$

$y = \frac{5}{x^2-5x}$

vert $x^2-5x=0$

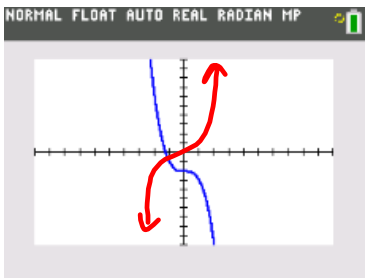
$x(x-5)=0$

$x=0 \quad x=5$

horiz

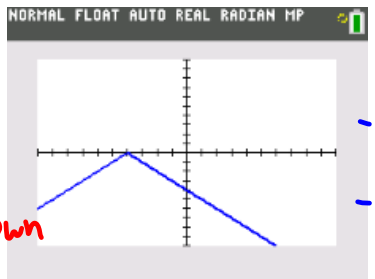
$y=0$

5. Name the parent function and two transformations that occurred.



$y = x^3$

- reflect over y
- shifts 2 down



$y = |x|$

- reflect over x
- shifts 4 left

6. Using the table below, determine if the data best fits a linear or quadratic model. Then find a model for the data and determine what the record for the 100 m freestyle will be in 2016.

Year	100 m freestyle
1988	54.93
1992	54.64
1996	54.50
2000	53.83
2004	53.84
2008	53.12
2012	53.00

L_1 L_2

7. Solve $5x^2 - 2x = 4$ by using the quadratic formula. Give your answer to one decimal place.

$5x^2-2x-4=0$ set = to 0 $\quad \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

A B C
5 -2 -4

$x = 1.1$
$x = -.7$

8. Solve algebraically and support graphically.

$2 + (2x - 6)^2 = 11$

$(2x-6)^2 = 9$

$2x-6 = 3 \quad 2x-6 = -3$

$2x = 9 \quad 2x = 3$

$x = 9/2 \quad x = 3/2$

$* \quad \sqrt{x+23} = x+3$

$\left(\sqrt{x+23}\right)^2 = (x+3)^2$

$x+23 = x^2+6x+9$

$-x \quad -23 \quad -x \quad -23$

$0 = x^2+5x-14$

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

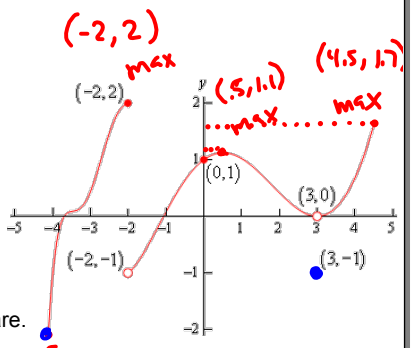
$x = -7$ Extraneous $\quad x = 2$ * ANSWER ✓

9. Find all the zeros for the function. Then list any intervals where it is increasing, decreasing or constant.

$y = x^3 - 3x$

$f(x) = 3x^3 - 5x + 2$

10. Use the graph at the right to find the following:



a) List any local minimum or maximum points.

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

b) List any intervals where the function is increasing, decreasing or constant.

DEC (.5,3)

INC (-4,-2) (-2,.5) (3,4.5)

c) List any points of discontinuity and identify what type they are.

x = -2 JUMP $\quad$ x = 3 REMOVABLE

d) Find the domain and range.

D: [-4, 4.5]

R: [-2, 2]