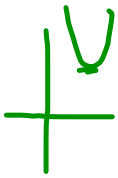
Quiz 1.1 to 1.2 Review Name: _____ Period: ____

1. a. Find the domain and range of the following function algebraically.

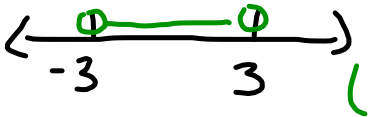
$h(x) = (x-2)^2+5$ D: $(-\infty,\infty)$ R: $[5,\infty)$ vertex: $(2,5)$



b. Find the domain of the following function algebraically.

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

$9-x^2>0$ $x^2<9$ $9>x^2$



$(-3,3)$

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 were even?

$(-1,-2)$ $(-1,2)$

3. Determine whether each function below is continuous or discontinuous. If it is discontinuous, tell whether it is removable or nonremovable and give the coordinate of the hole in the graph or the equation of the asymptote caused.

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

$x=-2$

asymptote (vertical)

$$h(x) = \frac{2x(x+3)}{(x+3)}$$

$x=-3$

hole in graph at $x=-3$

$$h(x) = \frac{2x^2+6x}{x+3}$$

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

y= x=

$g(x)=\frac{3x}{x-4}$

$x=4$ vertical

$y=3$ horizontal

$f(x)=\frac{5}{x^2-5x}$

horizontal $y=0$

$f(x)=\frac{5}{x(x-5)}$

Vertical $x=5$ $x=0$

5. Determine the end behavior of the following functions...write it in proper limit notation.

NO calculator

$f(x)=\frac{4x^2+3x-7}{-2x^2-8x+5}$ $y=-2$

$\lim_{x\to-\infty} f(x)=$ -2

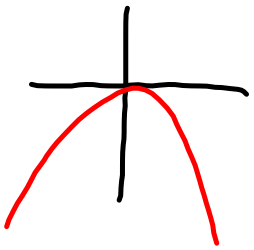
$\lim_{x\to\infty} f(x)=$ -2

$g(x)=\frac{-4x^5+8}{3x^3+2x^2-4}$

$y=-\frac{4}{3}x^2$

$\lim_{x\to-\infty} g(x)=$ $-\infty$

$\lim_{x\to\infty} g(x)=$ $-\infty$

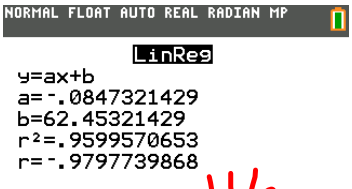


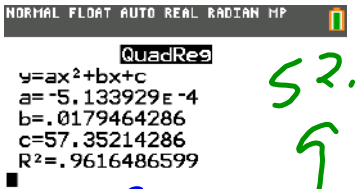
parabola opens down

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	time
1988	54.93
1992	54.64
1996	54.50
2000	53.83
2004	53.84
2008	53.12
2012	53.00

88 92 96 100 104 108 112 116



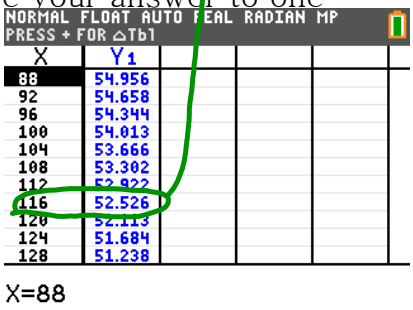


116 r=-.98

52.526

$y = -.000513x^2 + .0179x + 57.352$

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



8. Solve algebraically and support graphically.

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

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

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

$2x-6 = 3$ or $2x-6 = -3$

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

$x = \frac{9}{2}$ $\quad x = \frac{3}{2}$

9. If the following even, odd or neither...prove your answer algebraically.

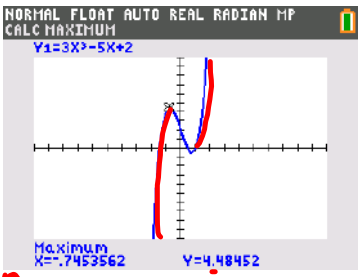
Odd $f(x) = 3x^3 - 7x$

$f(-x) = 3(-x)^3 - 7(-x)$ $-3x^3 + 7x$ opposite of $f(x)$ ∴ odd

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

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

of x

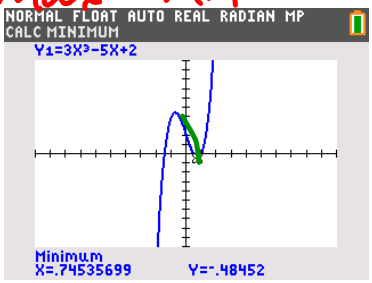


increasing

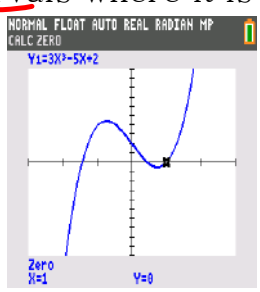
$(-\infty, .745]$

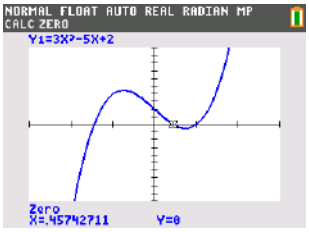
$[.745, \infty)$

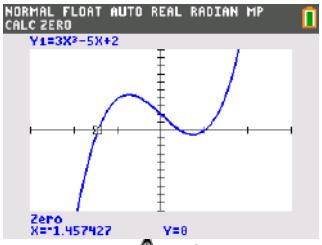
max & min



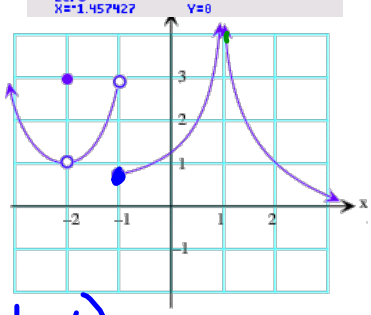
$[-.745, .745]$







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



a) List any local minimum or maximum points.

max 3 at $x = -2$ min .75 at $x = -1$

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

inc

decreasing $(-\infty, -2)$ $(1, \infty)$ $(-2, -1)$ $[-1, 1)$

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

$x = -2$ Removable $x = -1$ infinite nonremovable asymptote

$x = -1$ jump

d) Find the domain and range.

Domain $(-\infty, 1) \cup (1, \infty)$

Range $(0, \infty)$