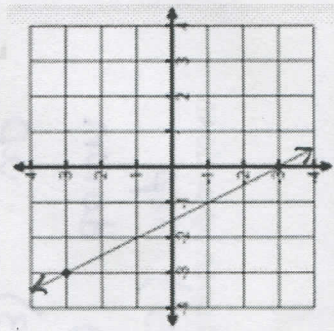


TASK 1: Chapter 1 Review

Linear equations have a highest exponent of one. The graph of linear equations is a line. The domain and range for the graph provided, in interval notation is:

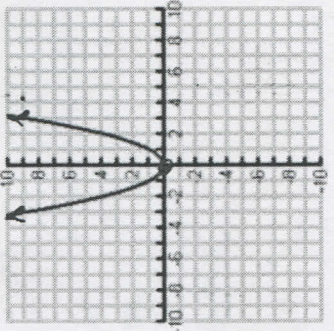
Domain: $(-2, \infty)$
 Range: $(-2, \infty)$



TASK 2: Chapter 1 Review

A quadratic function whose parent function is $f(x) = x^2$. The "U" shape of the graph is called a Parabola. The domain and range for the graph provided, in interval notation is:

Domain: $(-\infty, \infty)$
 Range: $[0, \infty)$



TASK 3: Identify each equation as: linear, quadratic, or neither. Be able to justify your answer.

a) $y = 2x - 1$

linear

b) $3x^3 - 4y = 10$

neither (cubic)

c) $y = x^2 - 1$

quadratic

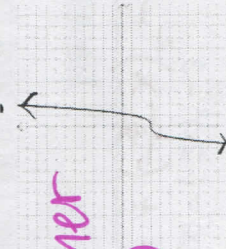
d) $x + x^2 + 5 = 2y$

quadratic

TASK 4: Identify each graph as linear, quadratic or neither.

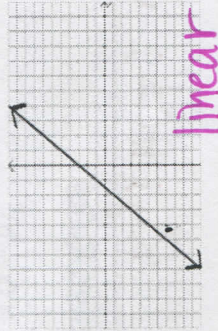
Be ready to justify your answer.

a)



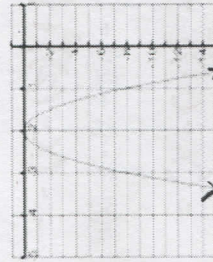
neither (cubic)

b)



linear

c)



quadratic

TASK 5: RECALL Transformations

- a) What does a "- h" do to a graph? $\leftarrow h$
- b) What does a "+ k" do to a graph? $\uparrow k$
- c) Give me a number that would vertically stretch a graph.
 $a > 1$
- d) Give me a number that would horizontally stretch a graph.
 $b > 1$
- e) Where does the negative go when I want to reflect a graph over the x-axis? $-f(x)$

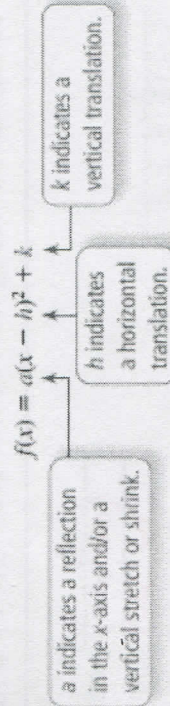
TASK 6: Describe the Transformations from the parent function

$y = a(x - h)^2 + k.$

- a) $g(x) = (x + 1)^2 - 5$
 $= (x - (-1))^2 - 5$ $\leftarrow 1u$ $\downarrow 5u$
- b) $p(x) = -(x - 2)^2 + 1$
 $= -(x - (2))^2 + 1$ $\rightarrow 2u$ $\uparrow 1u$
- c) $j(x) = (-2x)^2 - 3$
 $= + \left(-\frac{1}{2}x\right)^2 - 3$ $R_y; HC \downarrow; \downarrow 3u$

TASK 7: Vertex Form of a Quadratic

The vertex, (h, k) , is the lowest or highest point. It is also known as the minimum or maximum of a parabola.



State the vertex and if the graph would open up or down.

- a) $g(x) = (x + 1)^2 - 5$ $(-1, -5)$ up
- b) $p(x) = -(x - 2)^2 + 1$ $(2, 1)$ down
- c) $j(x) = (-2x)^2 - 3$ $(0, -3)$ up

Still need help with:

Transformation Rules

Translation Left or Right: $f(x - h) = (x - h)^2$

- if $h < 0$ then left if $h > 0$ then right

Translation Up or Down: $f(x) + k = x^2 + k$

- if $k < 0$ then down if $k > 0$ then up

Reflection over the x-axis: $-f(x) = -(x)^2$ or $-x^2$

Reflection over the y-axis: $f(-x) = (-x)^2$ or x^2

Vertical Stretch/Compression: $af(x) = ax^2$

- $a > 1$ then VS $0 < a < 1$ then VC

Horizontal Stretch/Compression: $f\left(\frac{1}{b}x\right) = \left(\frac{1}{b}x\right)^2$

- $b > 1$ then HS $0 < b < 1$ then HC