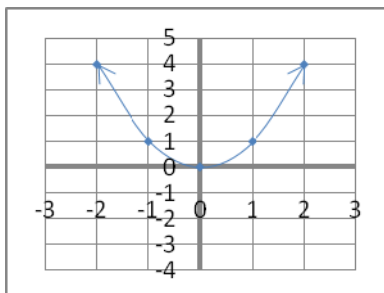MTH133 Unit 4 – Individual Project 2

1. Use the graph of $f(x) = x^2$ to match the function to its corresponding graph. In words describe the transformation that occurs (ex: The graph of f(x) is shifted 6 units to the left).
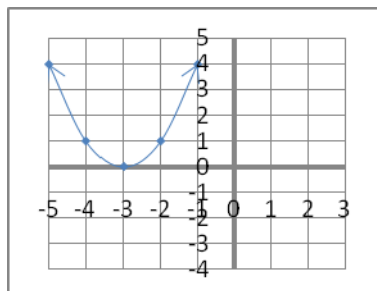
$$f(x) = x^2$$

Choose from the following functions:
$$g(x) = (x - 2)^2 \; ; h(x) = x^2 - 2 \; ; i(x) = (x + 3)^2 \; ; j(x) = (x + 1)^2 + 3$$
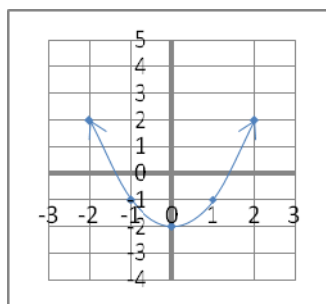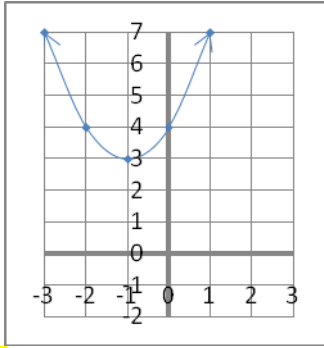
a)

Answer:
Function:
Description of transformation:

b)

Answer:
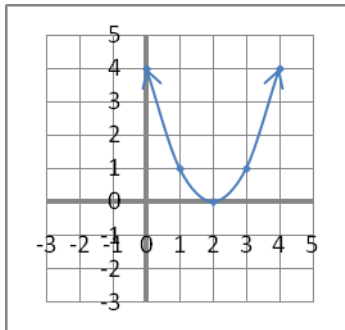Function:
Description of transformation:

c)

d)

2. Find the domain of the function and express the answer in interval notation. Explain in words or show the calculations.

a) $f(x) = 4x^2 - 7x + 3$

b) $g(x) = \dfrac{10}{x+7}$

c) $f(x) = \sqrt{4x - 16}$

d) $g(x) = \dfrac{2x}{x - 3}$

e) f(x) = 3x - 9

3. Find the specified asymptotes of the following functions. Recall that asymptotes are lines therefore the answer must be given as an equation of a line.

a) Find the equation of the vertical asymptote of the function : $f(x) = \dfrac{4}{x + 5}$

b) Find the equation of the horizontal asymptote of the function: $g(x) = \dfrac{5x^2 - 4}{x + 1}$

c) Find the equations of both the vertical and horizontal asymptotes of the function: $f(x) = \dfrac{3x - 1}{x + 4}$

d) Find the equations of both the vertical and horizontal asymptotes of the function: $g(x) = \dfrac{x + 7}{x^2 - 4}$