EXAM REVIEW 1

CHAPTER 1: Introduction to Quadratic Equations

1. Simplify.

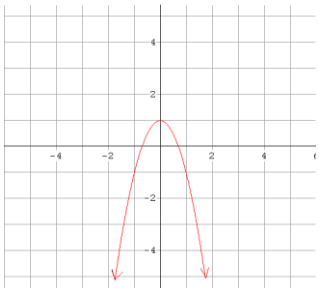
   (a) $\left(ab^4\right)\left(a^{-3}b^4\right)$ (b) $\left(-x^2\right)^5\left(2x^3\right)^6$ (c) $(x+5y^2)(-2x^2-3y^3)$

2. (a) Graph $y=x^2-6x+3$.

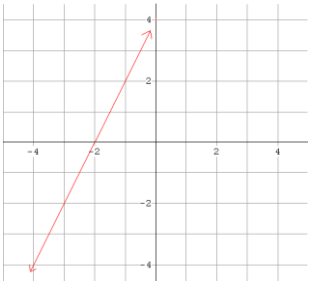
   (b) State the vertex, axis of symmetry, y-intercept, x-intercept(s) and direction of opening.

3. State the domain and range for the following functions.

   (a)

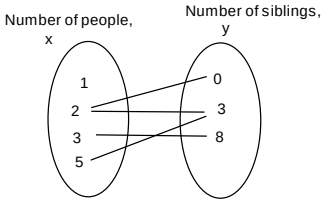


   (b)

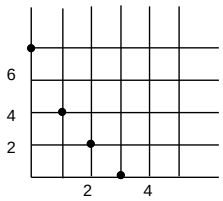


4. Determine whether the following relations are functions. State the domain and range.

   (a) $f=\{(1,2),(1,3),(5,3),(6,2)\}$ (b)



   (c)



5. If $f(x)=3(x-2)^2+1$, determine

   (a) $f(-1)$ (b) $f(x+1)$

6. In words, describe the transformations to the graph $f(x)=x^2$ to get $g(x)$,

   if $g(x)=\frac{1}{2}(x+4)^2-3$.

7. What conclusion can you make if the same value appears when calculating:

   (a) the "1st difference"?

   (b) the "2nd difference"?

8. A football is kicked from a height of 0.5 m. The height of the football is modeled by the the function $h(t)=-5t^2+18t+0.5$, where t is time in seconds and $h(t)$ is height in metres.

   (a) Graph the function.

   (b) State Domain and Range for this application in set notation.

   (c) At what time does the football reach maximum height? Show your work.

   (d) For how many seconds is the football in the air? Show your work.

9. Graph each of the following STEP BY STEP and then state domain and range.

(a) $y = \frac{1}{2}(x+3)^2$

(b) $g(x) = -3(x-1)^2 + 2$

(c) $y = -2$

10. Create a first- and second-difference table for the following data.

x	-1	0	1	2	3
y	1	2	-3	-14	-31
1st Difference					
2nd Difference					

(b) What conclusion can be made from the first difference?

(c) What conclusion can be made from the second difference?

11. A relation g is given by $g(x) = 3x^2 + 2x - 4$. Evaluate.

(a) $g(-2)$ (b) $g(m)$ (c) $g(4a)$

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