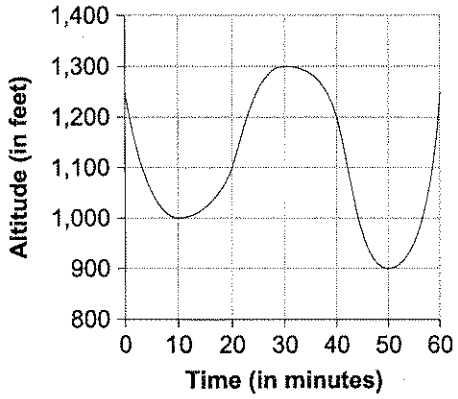
Math 2 Review for Test 4

Name_____

1. The table and graph below indicate the relationship between Joey's altitude above sea level $A(t)$ and time t since the beginning of a race on the Little Forks Biking Trail.

Minutes Since Race Started	Altitude (in feet)
0	1,250
10	1,000
20	1,100
30	1,300
40	1,200
50	900
60	1,250



a. Using the table, find the value of $A(40)$. What does it tell you about Joey's bike ride?

b. Using the table & graph, find the value(s) of t that satisfy the equation $A(t) = 1{,}000$. What do they tell you about Joey's bike ride?

c. For Joey's bike ride, is altitude a function of time since the start of the race? Explain your reasoning.

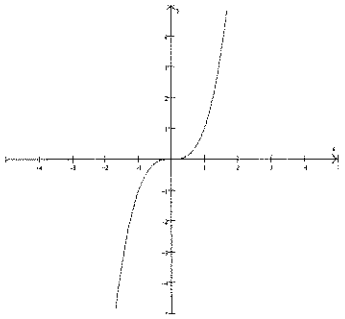
d. Express the following statement in function notation: "50 minutes since the race has started, Joey's altitude above sea level is 900 ft."

2. a. i. Complete the table of values below so that y is **not** a function of x. Explain.

x	1	2	3	
y	3	6	7	

ii. What is the Domain and Range of the values in the table?

b. i. Determine whether or not the graphs below represent a function and explain why or why not. If it is not a function also cite a **specific example** of how it fails. Assume Xscl=1 and Yscl=1 on the graph.



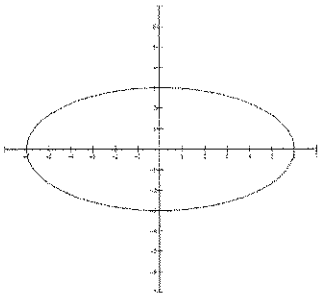
Function or Not a Function

Explain:

Example (if appropriate):

ii. What is the Theoretical Domain and Range of the function above?

c.



Function or Not a Function

Explain:

Example (if appropriate):

d. What is the Theoretical Domain and Range of the function $f(x)=\frac{3}{x^2}$

3. Multiply and simplify.

a. $(x+3)(x-5)$ b. $(x+7)(x+2)$ c. $(x-5)^2$

4. Find the equivalent **factored form** for each quadratic expression.

a. $x^2 + 6x + 8$ b. $x^2 + 10x - 24$ c. $x^2 - 49$ d. $33x^2 - 6x$

5. Solve each quadratic equation by ZPP. Show your work.

a. $x^2 - 4x + 3 = 0$ b. $x^2 - 11x + 10 = 0$ c. $2x^2 + x - 28 = 0$

6. Solve the equation algebraically. $x^2 - 5 = 20$

7. Solve by Completing the Square:

a. $x^2 - 10x - 11 = 0$ b. $2x^2 + 8x = 14$

Math 2 Review for Test 4 Name Key

1. The table and graph below indicate the relationship between Joey's altitude above sea level $A(t)$ and time t since the beginning of a race on the Little Forks Biking Trail.

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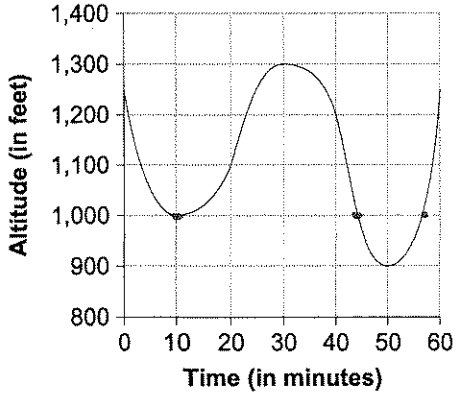


a. Using the table, find the value of $A(40)$. What does it tell you about Joey's bike ride?

$A(40) = 1200$

40 minutes since the race started, Joey is at an altitude of 1200 feet.

b. Using the table & graph, find the value(s) of t that satisfy the equation $A(t) = 1{,}000$. What do they tell you about Joey's bike ride?

10 minutes, ≈44 minutes, and ≈57 minutes after the race started, Joey was at 1000 feet

c. For Joey's bike ride, is altitude a function of time since the start of the race? Explain your reasoning.

Yes, his altitude depends on the time since the race started. For any given time, there is at most one altitude.

d. Express the following statement in function notation: "50 minutes since the race has started, Joey's altitude above sea level is 900 ft."

$A(50) = 900$ ft.

2. a. i. Complete the table of values below so that y is **not** a function of x. Explain.

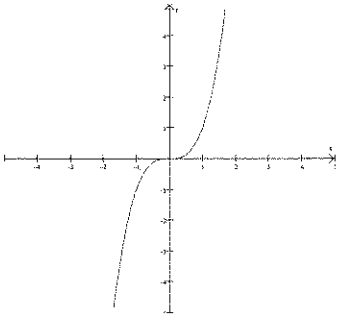
x	1	2	3	2
y	3	6	7	71

Answers may vary.

ii. What is the Domain and Range of the values in the table?

X: $\{1,2,3\}$ Y: $\{3,6,7,71\}$

b. i. Determine whether or not the graphs below represent a function and explain why or why not. If it is not a function also cite a **specific example** of how it fails. Assume Xscl=1 and Yscl=1 on the graph.



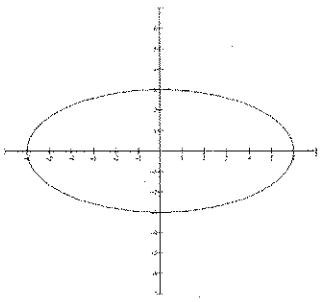
(Function) or Not a Function

Explain: For any given x value, there is at most one y-value.

Example (if appropriate):

ii. What is the Theoretical Domain and Range of the function above?

c.

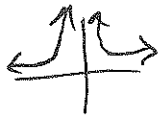


Function or (Not a Function)

Explain: When $x=0$, y is 3 or -3. ∴ For a given value of x, there are more than one y-value.

Example (if appropriate): $x=0$, $y=3$ or -3

d. What is the Theoretical Domain and Range of the function $f(x)=\frac{3}{x^2}$



$x \neq 0$, $y>0$

3. Multiply and simplify.

a. $(x+3)(x-5)$ $x^2-2x-15$

b. $(x+7)(x+2)$ $x^2+9x+14$

c. $(x-5)^2$ $x^2-10x+25$

4. Find the equivalent **factored form** for each quadratic expression.

a. x^2+6x+8 $(x+2)(x+4)$

b. $x^2+10x-24$ $(x+12)(x-2)$

c. x^2-49 $(x-7)(x+7)$

d. $33x^2-6x$ $3x(11x-2)$

5. Solve each quadratic equation by ZPP. Show your work.

a. $x^2-4x+3=0$

$(x-3)(x-1)=0$

$x=3$ or $x=1$

b. $x^2-11x+10=0$

$(x-10)(x-1)=0$

$x=1$ or $x=10$

c. $2x^2+x-28=0$

~~$(2x-4)(x+7)=0$~~

$(2x-7)(x+4)=0$

$x=-4$ or $x=7/2$

6. Solve the equation algebraically. $x^2-5=20$

$x=5$ or $x=-5$

7. Solve by Completing the Square:

a. $x^2-10x-11=0$

$x^2-10x+25=11+25$

$(x-5)^2=36$

$x-5=\pm 6$

$x=5\pm 6$

$x=11$ or $x=-1$

b. $2x^2+8x=14$

$2x^2+8x=14$

$x^2+4x+4=7+4$

$(x+2)^2=11$

$x+2=\pm\sqrt{11}$

$x=-2\pm\sqrt{11}$