Math 1

- Test tomorrow!

Projectiles:

$-16t^2 + vt + h$

v ↓ velocity

h ↓ initial height.

7. a

	$\frac{1}{3}x$	-5
$2x$		
$+3$		

b.

	$-2x$
$-4x$	
-1	

#8 a

	x	$+2$
x	x^2	$2x$
-2	$-2x$	-4

$x^2 + 2x - 2x - 4$

$x^2 + 0x - 4$

Factor: $x - 2$

term: $0x$

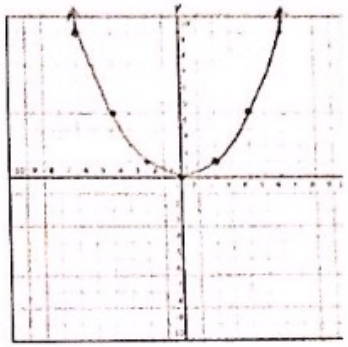
Math I Assessment Review Name: Key

Identify key points, then graph the following quadratic functions.

1. $f(x) = \frac{1}{4}x^2$

a. Build a table with the values around the vertex.

x	-8	-4	-2	0	2	4	8
y	9	4	1	0	1	4	9



b. The vertex is located at (0 , 0), and it is a Max or (Min)?

c. The axis of symmetry is x = 0

d. The graph (opens UP) or DOWN because the a-value is positive.

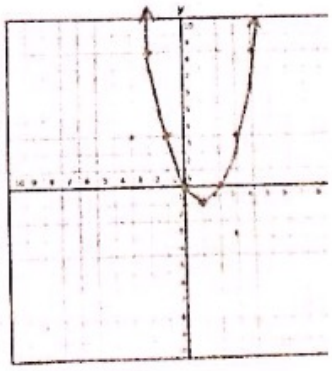
e. The x-intercepts are at (0 , 0) and (,).

f. The y-intercept is at (0 , 0)

2. $f(x) = x^2 - 2x$

a. Build a table with the values around the vertex.

x	-2	-1	0	1	2	3	4
y	8	3	0	-1	0	3	8



b. The vertex is located at (1 , -1), and it is a Max or (Min)?

c. The axis of symmetry is x = 1

d. The graph opens (UP) or DOWN because the a-value is positive.

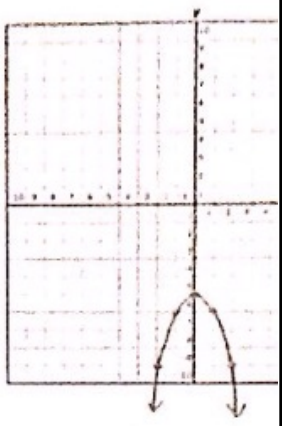
e. The x-intercepts are at (0 , 0) and (2 , 0).

f. The y-intercept is at (0 , 0)

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

a. Build a table with the values around the vertex.

x	-3	-2	-1	0	1	2	3
y	-14	-9	-6	-5	-6	-9	-14



b. The vertex is located at (0 , -5), and it is a (Max) or Min?

c. The axis of symmetry is x = 0

d. The graph opens UP or (DOWN) because the a-value is negative.

e. The x-intercepts are at (,) and (,).

f. The y-intercept is at (0 , -5)

4. $f(x) = x^2 + 2x - 8$

a. Build a table with the values around the vertex.

x	-4	-3	-2	-1	0	1	2
y	0	-5	-8	-9	-8	-5	0

b. The vertex is located at (-1 , -9), and it is a Max or Min?

c. The axis of symmetry is x = -1

d. The graph opens (UP) or DOWN because the a-value is positive.

a. The x-intercepts are at (-4 , 0) and (2 , 0)

b. The y-intercept is at (0 , -8)

5. Suppose a projectile thrusted into motion is modeled by the function $h(t) = -16t^2 - 32t + 128$

a. What is the initial height of the object?

128 ft

$-16t^2 + vt + h$

b. What is the velocity?

-32

c. Suppose t is the time in seconds and h is height in feet, what is the height after 2 seconds?

0

d. What do the values in problem c tell us?

hits the ground

6. It's the 4th of July! AH YEAH! You and some friends are planning to shoot off some mortar rounds. You are going to shoot them off of a 768 foot platform. The mortars shoot off at an upward velocity of 32 meters/second.

a. Write the equation that models this situation.

$h(t) = -16t^2 + 32t + 768$

b. What will the maximum height of the mortar rounds be?

(1, 784)
vertex

max height
784 ft

7. Write the following expressions in standard form:

a. $(1/3x - 5)(2x + 3)$

$\frac{2}{3}x^2 - 9x - 15$

	$\frac{1}{3}x$	-5
$2x$	$\frac{2}{3}x^2$	$-10x$
$+3$	$1x$	-15

$\frac{2}{3}x^2 - 10x + 1x - 15$

b. $-2x(-4x - 1)$

	$-2x$
$-4x$	$8x^2$
-1	$2x$

$8x^2 + 2x$

8. Find the missing values in the following problems:

a. Given a quadratic expression with the terms x^2 and -4 and a factor of $(x + 2)$, find the missing term of the quadratic expression and the other factor.

	x	$+2$
x	x^2	$2x$
-2	$-2x$	-4

factor: $x - 2$
missing term: $0x$

$x^2 + 2x - 2x - 4$

$x^2 + 0x - 4$

b. Given a quadratic expression with the terms $6x^2$ and 10 and one factor of $(2x + 5)$, find the missing term of the quadratic expression and the other factor.

	$2x$	$+5$
$3x$	$6x^2$	$15x$
$+2$	$4x$	$+10$

factor: $3x + 2$
term: $19x$

$6x^2 + 15x + 4x + 10$

$6x^2 + 19x + 10$

c. Given a quadratic expression with the terms x^2 and 6 and a factor of $(x + 1)$, find the missing term of the quadratic expression and the other factor.

	x	$+1$
x	x^2	$1x$
$+6$	$6x$	$+6$

Factor: $x + 6$
term: $7x$

$x^2 + 1x + 6x + 6 = x^2 + 7x + 6$

d. Given a quadratic expression with the terms $4x^2$ and -12 and one factor of $(x - 4)$, find the missing term of the quadratic expression and the other factor.

	x	-4
$4x$	$4x^2$	$16x$
$+3$	$+3x$	-12

factor: $4x + 3$
term: $-13x$

$4x^2 - 16x + 3x - 12 = 4x^2 - 13x - 12$

9. Simplify the following expressions:

a. $(3x^2 - 4x + 4) + \frac{1}{2}(2x^2 + 5x - 12)$

$3x^2 - 4x + 4 + 1x^2 + \frac{5}{2}x - 6$

$4x^2 - 1.5x - 2$

b. $(6.2x^4 - 2.3x^3 + 4.1x) - (-2.3x^3 - 2.3x + 0.9)$

$6.2x^4 - 2.3x^3 + 4.1x + 2.3x^3 + 2.3x - 0.9$

$6.2x^4 + 0x^3 + 6.4x - 0.9$

$6.2x^4 + 6.4x + 1.4$