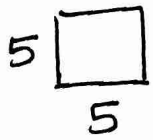
FFPC Test Review

1. Suppose you have 20 meters of fencing. What is the greatest rectangular area you can make?

$\frac{20}{4} = 5$



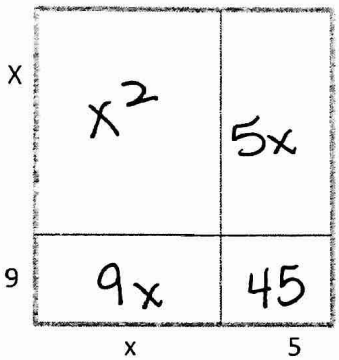
$\boxed{25m^2}$

2. What if you increase each dimension by 3 meters...what will your new dimensions be? What will the new area be?

8 by 8

$\boxed{64m^2}$

3.



Write an expression for the area in factored form and expanded form

factored $(x+9)(x+5)$

expanded $x^2 + 14x + 45$

4.

1	2	3	4	5	6
2	5	10	17	26	37

Describe the pattern. y-values go up by 3 then, 5 then 7 then 9...

What is the nth term?

$y = n^2 + 1$

What is the 15th term?

$15^2 + 1 \Rightarrow 226$

5. For the equation: $y = (x - 3)(x + 5)$

Find the x-intercepts 3 and -5

Find the y-intercept (0, -15)

Line of symmetry $x = -1$

Maximum or minimum (-1, -16)

$(-1-3)(-1+5)$

$(-4)(4)$

On page 81-82, do problems #5 and #6

#5

$d = -16t^2 + 18t + 10$

a) $x = \frac{-b}{2a} = \frac{-18}{-32}$

$x = .5625$

$\boxed{(.5625, 15.0625)}$

b)

$0 = -16t^2 + 18t + 10$

$0 = 2(-8t^2 + 9t + 5)$

	5
$-8t^2$	
1	5

can't factor

Kelsey hits water about 1.54 sec. after he dives

c) his starting height

#6 $h = -16t^2 + 48t + 8$

a) $x = \frac{-b}{2a} \Rightarrow \frac{-48}{-32}$

$x = 1.5$

(1.5, 44)

b) about 3.15 sec

c) go up and then down

y-values go up then down

d) where ball starts

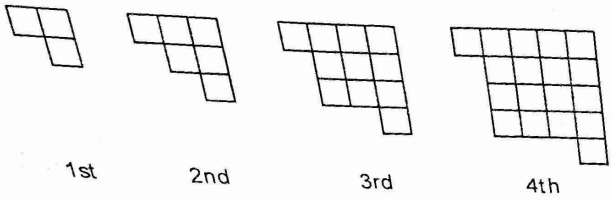
Name _____ Date _____ Class _____

Additional Practice (continued)

Investigation 3

Frogs, Fleas, and Painted Cubes

4. a. The pattern of squares below represent the first four numbers in a sequence. What are the total number of squares in the next two figures?



x	y
1	3
2	6
3	11
4	18
5	27
6	38
7	51
8	66
9	83
10	102

b. Describe the arrangement of squares representing the nth figure in the sequence.

$y = x^2 + 2$

c. Write an equation for calculating the number of squares s in the nth figure in the sequence.

$y = x^2 + 2$

d. Make a table and a graph of the total number of squares in the first ten figures in this sequence. Describe the pattern of change from the number of squares in one figure to the next in the sequence.

as you increase the figure number you add the figure number ~~#~~ plus 1

Name _____ Date _____ Class _____

Additional Practice *(continued)*

Investigation 4

Frogs, Fleas, and Painted Cubes

7. Which of these are quadratic functions?

a. $y = x^2 - 7$

yes

x-int ≈ 2.6 and −2.6

y-int −7

(0, −7)

b. $y = 2(x + 7)$

No

c. $y = x(x + 7)$

yes

x-int 0 and −7

y-int 0

(−3.5, −12.25)

d. $y = (x + 4)(x - 2)$

yes

x-int −4 and 2

y-int −8

(−1, −9)

e. $y = (6 + 5)(x + 2)$

No

f. $y = (x - 3)(4)$

No

g. $y = 2x + 9$

No

h. $y = x^2 - 9$

(x+3)(x−3)

yes

x-int 3 and −3

y-int −9

(0, −9)

i. $y = x + x + 9$

No

8. For each quadratic function in Exercise 7, find the coordinates of the x- and y-intercepts and the maximum/minimum point of the graph of the function.