

Name \_\_\_\_\_

Date \_\_\_\_\_

## Unit 4: Quadratics

## Classwork Assignment #12

**I can find the Key points of a parabola:**

Find all the key points for the following quadratics:

1)  $y = 2x^2 - 4x - 9$

Root 1	Root 2	Vertex	Y intercept

2)  $y = 16x^2 - 20x - 8$

Root 1	Root 2	Vertex

**I can find the vertex.** If I can find the vertex, I can write a quadratic in vertex form. We know from Unit 2 that a function in vertex form is  $f(x) = a(x-h)+k$  where  $h$  and  $k$  are the vertex. We are talking only about quadratics in this unit so we know that vertex form will be  $y=a(x-h)^2+k$ . I need a strategy to find the vertex. Everybody can find the roots, add them and divide by 2.

Put the following into vertex form

3)  $y = 4(x-2)(x+8)$

4)  $y = x^2 + 20x - 16$

5)  $y = x^2 + 19x - 4$

**I can multiply quadratics out quickly...**

Multiply the following out into General form. We all have the strategy, we COULD make a box and multiply it out. Some of us can really start looking for patterns and seeing how straight forward this task is.

6)  $y = 2(x-8)^2 + 16$

7)  $y = (x-5)(x+10)$

8)  $y = (2x-4)(3x+6)$

9)  $y = 8(3x-5)(2x+5)$

10)  $y = 12(x-2)^2 + 28$

11)  $y = (4x-2)(4)(x-2)$

12)  $y = 6x-5)(10)(x-5)$

13)  $y = 8(x-5)(x)$

**I can factor: Factor the following**

14)  $8x^2 - 16x$

15)  $120x^2 - 18$

16)  $256x^2 - 16x$

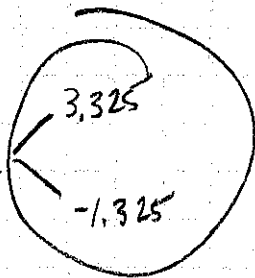
17)  $200x^2 - 50x$

# Assignment #120

①  $y = 2x^2 - 4x - 9$

$$4 \pm \frac{\sqrt{16 - 4(2)(-9)}}{4}$$

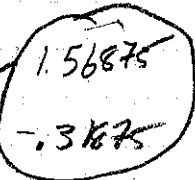
$$4 \pm 9.3$$



②  $y = 16x^2 - 20x - 8$

$$y = \frac{20 \pm \sqrt{20^2 - 4(16)(-8)}}{32}$$

$$\frac{20 \pm 30.2}{32}$$



③  $y = 4(x-2)(x+8)$

2, -8 (-3, -16)

④  $y = x^2 + 20x - 16$

$$y = (x^2 + 20x + 100) - 116$$

$(x+10)^2 - 116$

⑤  $y = x^2 + 19x - 4$

$$y = (x^2 + 19x + 90.25) - 90.25 - 4$$

$(x+9.5)^2 - 94.25$

I can Multiply

⑥

$$2(x^2 - 16x + 64)$$

$$2x^2 - 32x + 128 + 16$$

$2x^2 - 32x + 144$

⑦

$x^2 + 5x - 50$

⑧

$$(2x-4)(3x+6)$$

$$6x^2 + 12x - 12x - 24$$

$6x^2 - 24$

⑨

$$y = 8(3x-5)(2x+5)$$

$$8(6x^2 + 15x - 10x - 25)$$

$$8(6x^2 + 5x - 25)$$

$48x^2 + 40x - 200$

$$\textcircled{10} \quad y = 12(x-2)^2 + 28$$

$$12(x^2 - 4x + 4)$$

$$12x^2 - 48x + 48 + 28$$

$$\boxed{12x^2 - 48x + 76}$$

$$\textcircled{11} \quad (4x-2)(4)(x-2)$$

$$4x^2 - 8x - 2x + 4$$

$$4(4x^2 - 10x + 4)$$

$$\boxed{16x^2 - 40x + 16}$$

$$\textcircled{12} \quad (6x-5)(10)(x-5)$$

$$6x^2 - 30x - 5x + 25$$

$$10(6x^2 - 35x + 25)$$

$$\boxed{60x^2 - 350x + 250}$$

$$\textcircled{13} \quad y = 8(x-5)(x)$$

$$8(x^2 - 5x)$$

$$\boxed{8x^2 - 40x}$$

$$\textcircled{14} \quad 8x^2 - 16x$$

$$\boxed{8x(x-2)}$$

$$\textcircled{15} \quad 120x^2 - 18$$

$\textcircled{16}$

$$\textcircled{17} \quad 200x^2 - 50x$$