

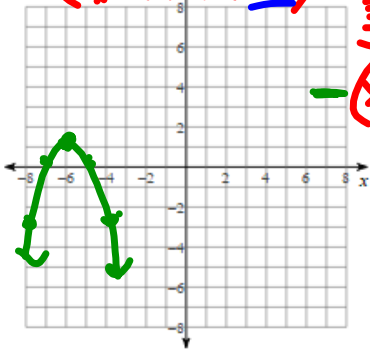
Unit 2 Review

Date _____ Perio _____

Identify the vertex and or x-intercepts of each. Then sketch the graph. Show at least 2 points on both sides of the vertex.

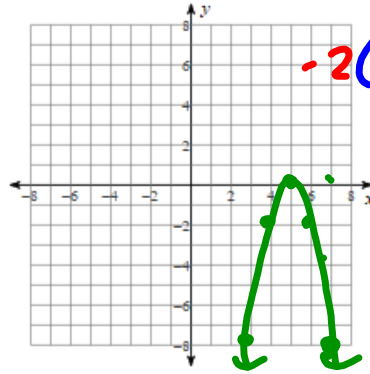
1) $y = -x^2 - 12x - 37$

$-(x^2 + 12x + 36) + 36 + 1$
 $-(x+6)^2 + 1$
 (6, 1)



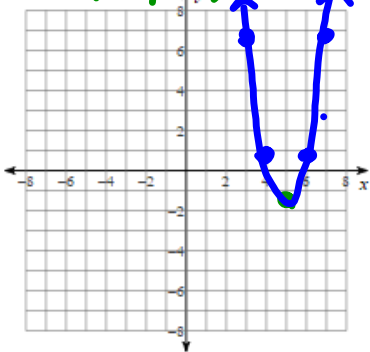
2) $y = -2x^2 + 20x - 50$

$-2(x^2 - 10x + 25) + 25 - 50$
 $-2(x-5)^2 + 0$
 (5, 0)



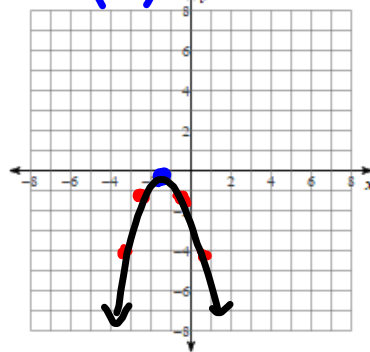
3) $y = 2(x-5)^2 - 2$

(5, -2)



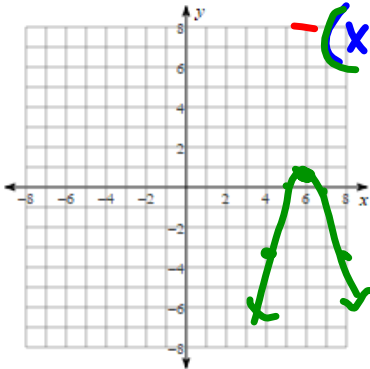
4) $y = -(x+1)^2 - 1$

(-1, -1)



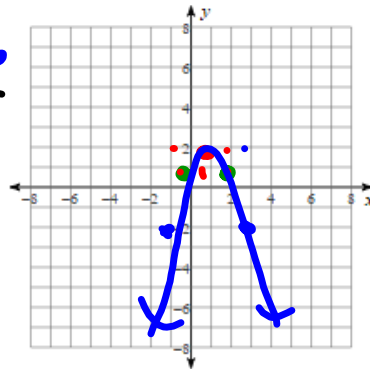
5) $y = -x^2 + 12x - 36$

$-(x^2 - 12x + 36)$
 $-(x-6)^2$
 right

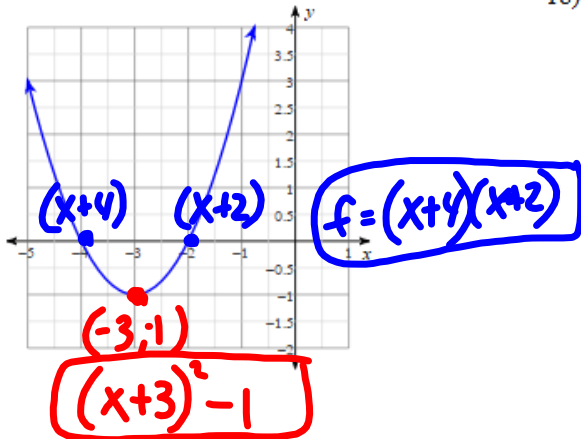


6) $y = -x(x-2)$

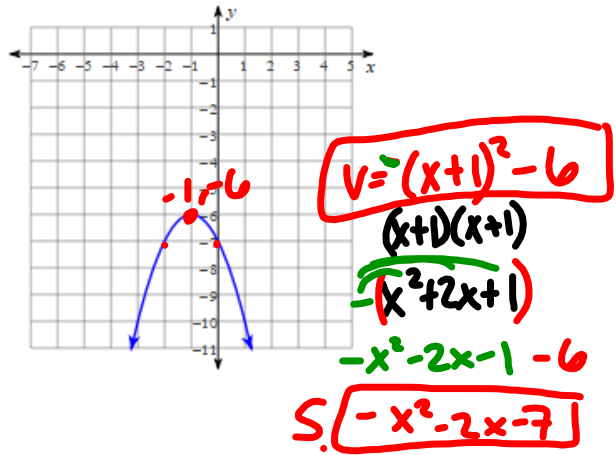
$-(x+0)(x-2)$
 +2



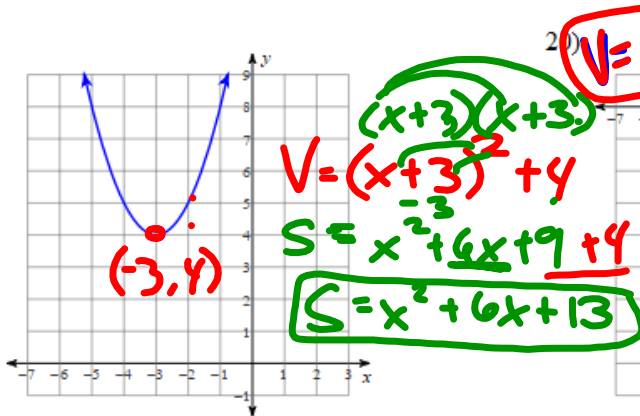
17)



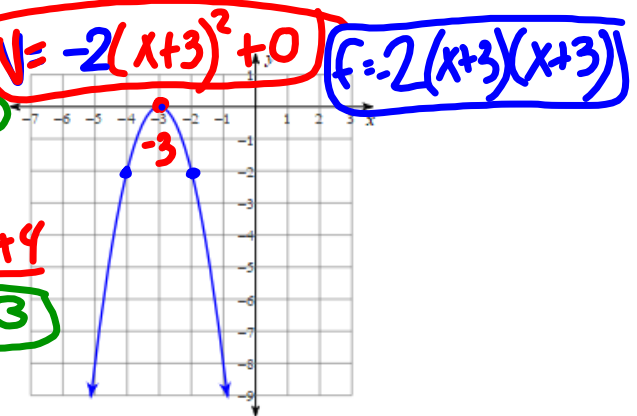
18)



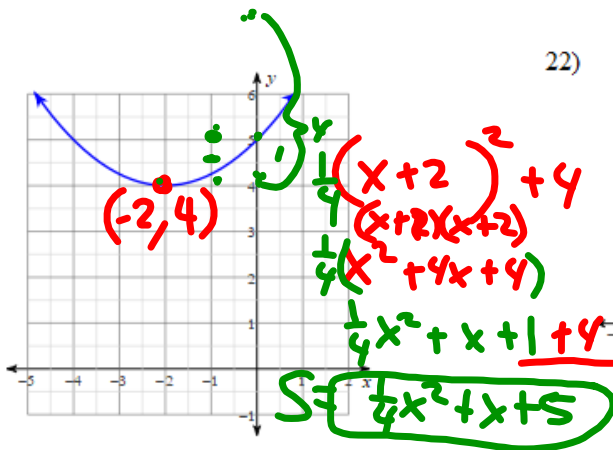
19)



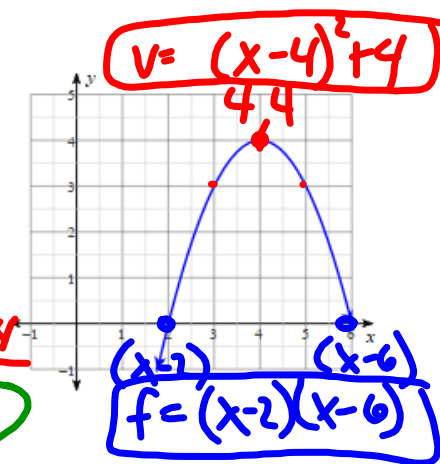
20)



21)



22)



Factor each completely.

23) $v^2 - 21v + 38$
 $(x-2)(x-19)$ ~~-2 38 -19 -21~~

24) $n^2 - 15n + 44$
 $(n-4)(n-11)$ ~~-4 44 -11 -15~~

25) $x^2 - 49$
 $(x+7)(x-7)$ ~~-49 -7 7 0~~

26) $r^2 - 18r + 65$
 $(r-5)(r-13)$ ~~-5 65 -13 -18~~

27) $k^2 - 6k - 27$
 $(x-9)(x+3)$ ~~-9 -27 3 -6~~

28) $x^2 + 10x - 96$
 $(x-6)(x+16)$ ~~-6 -96 16 10~~

29) $n^2 - 7n + 6$
 $(x-6)(x-1)$ ~~-6 6 -1 -7~~

30) $x^2 + 2x - 35$
 $(x+7)(x-5)$ ~~7 -35 -5 2~~

-96
 -1
 2
 3
 4
 6
 8
 12
 16
 24
 32
 48
 76
 $✓$

Sec II
Unit 2 Practice Test

Part I: Double Matching

Match each standard form equation with its equivalent vertex form equation in column A and its factored form equation from column B. (2 points each)

Column A	Column B	Standard Form (Question)	Vertex Form (Column A)	Factored Form (Column B)
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<u>d</u>	<u>c</u>	1) $y = x^2 + 2x - 8$	a) $y = (x - 1)^2 - 9$	a) $y = (x + 1)(x - 8)$
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<u>a</u>	<u>b</u>	2) $y = x^2 - 2x - 8$	b) $y = (x + 1)^2 + 9$	b) $y = (x + 2)(x - 4)$
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<u>c</u>	<u>f</u>	3) $y = x^2 + 6x + 8$	c) $y = (x + 3)^2 - 1$	c) $y = (x - 2)(x + 4)$
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<u>f</u>	<u>e</u>	4) $y = x^2 - 6x + 8$	d) $y = (x + 1)^2 - 9$	d) $y = (x - 1)(x - 8)$
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Handwritten work for the double matching problem:

1) $x^2 + 2x - 8$ | $x^2 + 2x - 8$ ~~$4x - 2$~~
 \square -9 | $(x+4)(x-2)$ ~~2~~
 $(x+1)^2 - 9$

2) $x^2 - 2x - 8$ | $x^2 - 2x - 8$ ~~$2x - 4$~~
 \square -9 | $(x+2)(x-4)$ ~~2~~
 $(x-1)^2 - 9$

3) $x^2 + 6x + 8$ | ~~$2x + 4$~~
 \square -1 | $(x+2)(x+4)$ ~~8~~
 9 -1 ~~$+6$~~
 $(x+3)^2 - 1$

4) $x^2 - 6x + 8$ | $x^2 - 6x + 8$ ~~$2x - 4$~~
 \square -1 | $(x-2)(x-4)$ ~~-2~~
 9 -1 ~~-6~~
 $(x-3)^2 - 1$

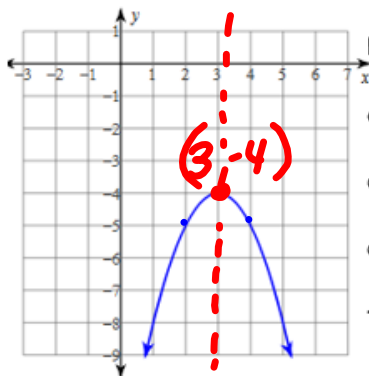
Part II: Multiple Choice (1 point each)

- 5) Identify the y-intercept of the equation $y = 2x^2 + 36x + 165$.
- a) $(0, -9)$ **b) $(0, 165)$** c) $(0, 27)$ d) $(0, -159)$
- 6) Identify the vertex of the equation $y = -3(x - 8)^2 - 3$.
- a) $(-8, 3)$ **b) $(8, -3)$** c) $(8, 3)$ d) $(3, -8)$
- 7) Identify the x-intercept of the equation $y = -(x + 10)(x + 2)$.
- a) $(10, 0)$ and $(2, 0)$ **b) $(-10, 0)$ and $(-2, 0)$**
- c) $(\frac{25}{2}, 0)$ and $(-\frac{19}{2}, 0)$ d) none

Part III: Short Answer

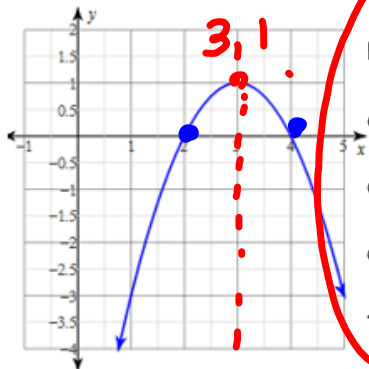
Given a graph, provide the requested information, equations can be 2 of the 3 different types: Standard Form, Vertex Form, or Intercept Form. (a-f: 1 pt each, g-h: 4 pts each)

8)



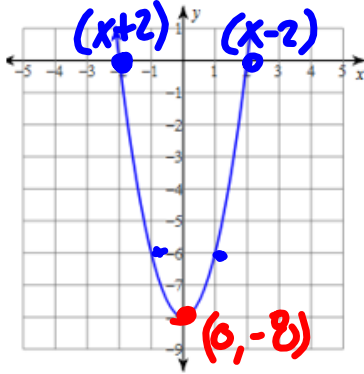
- a) Vertex: (3, -4)
- b) Stretch: 1 or normal
- c) Axis of Symmetry: x = 3
- d) y-intercept(s): sub x=0 (0-3)²-4 = -9-4 = -13
- e) x-intercept(s): none
- f) Open: down
- g) Equation 1: -(x-3)²-4
- h) Equation 2: -x²-6x+9-4 = -x²+6x-13
f.o.I.L. -x²+6x-9-4

9)



- a) Vertex: (3, 1)
- b) Stretch: 1 or normal
- c) Axis of Symmetry: x = 3
- d) y-intercept(s): -(0-3)²+1 = -8
- e) x-intercept(s): 2 and 4
- f) Open: down
- g) Equation 1: -(x-3)²+1 -x²+6x+9+1
- h) Equation 2: -(x-2)(x-4) -x²+6x-8

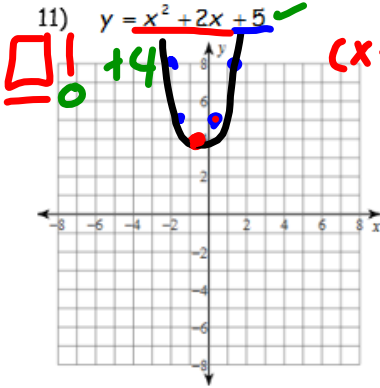
10)



- a) Vertex: $(0, -8)$
- b) Stretch: 2
- c) Axis of Symmetry: $x = 0$
- d) y-intercept(s): -8
- e) x-intercept(s): 2 and -2
- f) Open: up
- g) Equation 1: $2(x+0)^2 - 8 = 2x^2 - 8$
- h) Equation 2: $2(x+2)(x-2)$

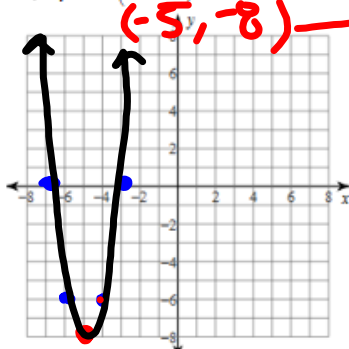
Given an equation, provide the requested information and graph the parabola. (a-f: 1 pt each, graphing 3 pts each)

11) $y = x^2 + 2x + 5$



- a) Vertex: $(-1, 4)$
- b) Stretch: 1 or normal
- c) Axis of Symmetry: $x = -1$
- d) y-intercept(s): 5
- e) x-intercept(s): $none$
- f) Open: up

12) $y = 2(x+5)^2 - 8$



- a) Vertex: $(-5, -8)$
- b) Stretch: 2
- c) Axis of Symmetry: $x = -5$
- d) y-intercept(s): $sub\ x=0\ 2(0+5)^2 - 8 = 42$
- e) x-intercept(s): -3 and -7
- f) Open: up

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

$$2(x^2 + 2x + 1)$$

$$2(x+1)(x+1)$$

~~$\frac{1}{2}$~~

$$3x^2 + 13x + 12$$

$$(3x + 4)(x + 3)$$

~~$\frac{36}{13}$~~

$$4x + 9x = 13$$

$$3x^2 + 4x + 9x + 12$$

$$x(3x + 4) + 3(3x + 4)$$

$$(3x + 4)(x + 3)$$

