Algebra 2 Quiz Review Sections 5-1 to 5-4 Fall 2013

For each parabola in 1 to 6 do the following:

a) Find the equation of the Line of Symmetry
b) Find the coordinates of the vertex.
c) Find the y-intercept.
d) Graph the parabola using 5 points.

1. $y = 3x^2 - 8$
2. $y = x^2 + 2x - 8$
3. $y = -2x^2 - 12x - 10$
4. $y = (x-2)^2 - 3$
5. $y = -\frac{1}{2}(x+4)^2 + 5$
6. $y = 2(x+2)^2$

7. A limousine shuttle service charges a fare of \$10.00 and carries 300 passengers a day. The company estimates that for every \$1 increase in the fare they will lose 15 passengers. The equation below can be used to calculate the revenue R for x increases in the fare.

$R(x) = -15x^2 + 150x + 3000$

a) Find the number of increases that the company should make to maximize their revenue.
b) Find the maximum revenue generated by these increases.

8. For each quadratic determine if it opens up or down.

a) $y = -48x^2 + x + 89$
b) $y = 0.75x^2 + 3x - 15$

9. For each quadratic determine if the vetex is a minimum or a maximum.

a) $y = 9x^2 - 7x - 1$
b) $y = -x^2 + 3x - 2$
c) $0.015x^2 - 9x - 23$

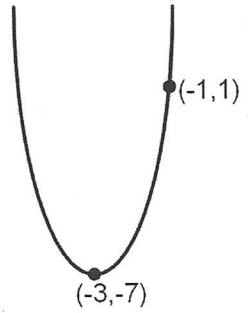
10. An object is shot into the air with an initial velocity of 160ft/sec from the top of a 20 foot tall building. The following equation models the height of the object as a funciton of time.

$h(t) = -16t^2 + 160t + 20$

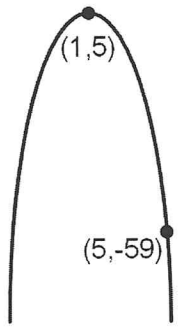
a) Find the maximum height of the object.
b) Find the time it takes the object to reach this height.

11. Write the equation of each parabola in Vertex Form.

a)



b)



12. Find a quadratic function that models each set of data

a. $(1,3),(-2,-1),(4,-2),(8,-9)$
b. $(3,-7),(-4,-63),(1,-3)$

Factor each completely.

13. $m^2 - 15m + 54$
14. $w^2 + 20w + 96$
15. $5c^2 - 40c + 35$
16. $7r^3 + 63r^2 + 98r$
17. $v^2 + 2v - 48$
18. $q^2 - 8q - 48$
19. $2n^2 - 2n - 40$
20. $11x^2 - 14x + 3$
21. $3x^2 - 20x - 7$
22. $8y^2 + 18y + 9$
23. $6z^2 + 7z - 10$
24. $m^2 - 225$
25. $66h^2 - 216$
26. $27a^2 - 192$
27. $8c^5 + 28c^3$
28. $54a^4b^2 - 30ab^4$

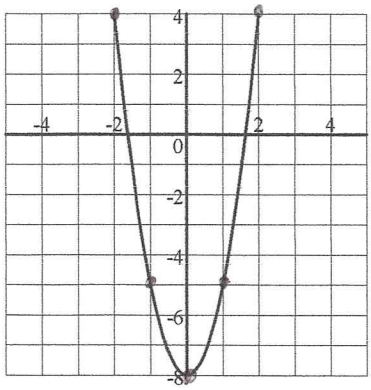
Alg 2 Quiz #2 Review

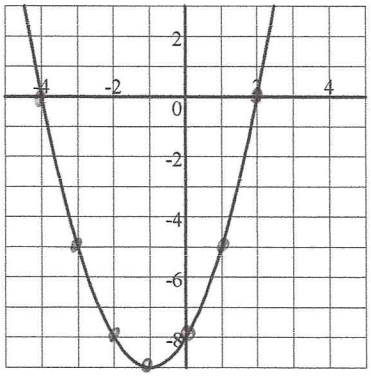
Sec 5-1 to 5-4 Fall 2013 **ANSWERS**

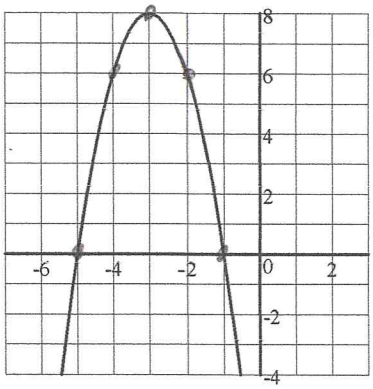
1. $y = 3x^2 - 8$
a) $LOS: x = 0$
b) $Vertex(0,-8)$
c) $y - int = -8$

2. $y = x^2 + 2x - 8$
a) $LOS: x = -1$
b) $Vertex(-1,-9)$
c) $y - int = -8$

3. $y = -2x^2 - 12x - 10$
a) $LOS: x = -3$
b) $Vertex(-3,8)$
c) $y - int = -10$



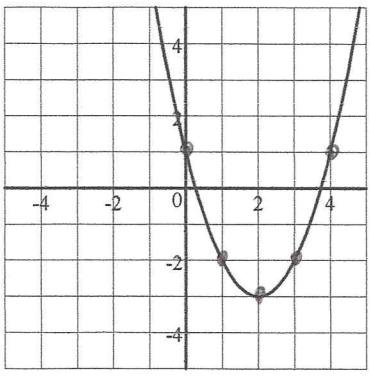


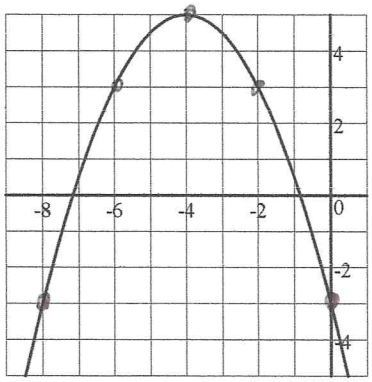


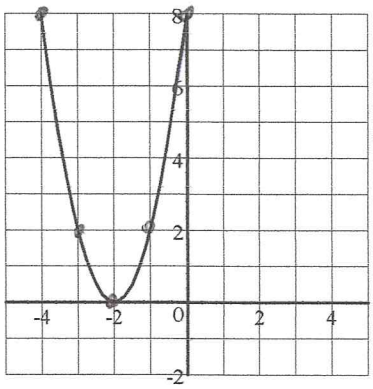
4. $y = (x-2)^2 - 3$
a) $LOS: x = 2$
b) $Vertex(2,-3)$
c) $y - int = 1$

5. $y = -\frac{1}{2}(x+4)^2 + 5$
a) $LOS: x = -4$
b) $Vertex(-4,5)$
c) $y - int = -3$

6. $y = 2(x+2)^2$
a) $LOS: x = -2$
b) $Vertex(-2,0)$
c) $y - int = 8$







7. a) # of increases= 5 b) Max revenue= \$3375 8. a) Down b) Up

9. a) Min b) Max c) Min 10. a) max ht = 420 ft b) 5 sec

11. a) $y = 2(x+3)^2 - 7$ b) $y = -4(x-1)^2 + 5$

12. a. $y = -0.22x^2 + 0.40x + 1.22$ b. $y = -2x^2 + 6x - 7$

13. $(m-6)(m-9)$ 14. $(w+12)(w+8)$ 15. $5(c-1)(c-7)$

16. $7r(r+7)(r+2)$ 17. $(v+8)(v-6)$ 18. $(q+4)(q-12)$

19. $2(n+4)(n-5)$ 20. $(11x-3)(x-1)$ 21. $(3x+1)(x-7)$

22. $(2y+3)(4y+3)$ 23. $(z+2)(6z-5)$ 24. $(m-15)(m+15)$

25. $6(11h^2 - 36)$ 26. $3(3a-8)(3a+8)$ 27. $4c^3(2c^2+7)$ 28. $6ab^2(9a^3 - 5b^2)$