Algebra 2 Quiz Review Sections 5-1 to 5-4 Fall 2014

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. The following function models the additional expenses to a company when they hire an employee where x represents the number of additional employee hires.

$E(x) = 45x^2 + 360x + 4124$

a) Find the number of additional employees to be hired to minimize the company's expenses..
b) Find the minimum additional expenses.

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) $0.015x^2 - 9x - 23$

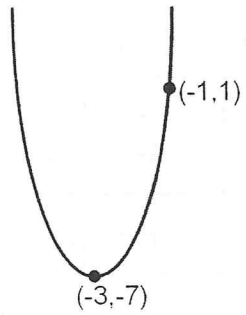
10. An object is shot into the air with an initial velocity of 160ft/sec from the top of a 20 foot tall building. The following equation models the height of the object as a funciton of time.

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

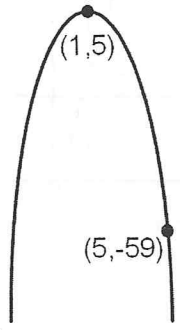
a) Find the maximum height of the object.
b) Find the time it takes the object to reach this height.

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.

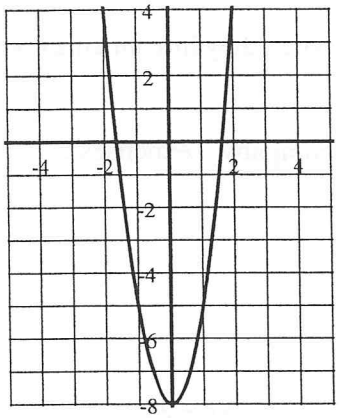
13. $m^2 - 15m + 54$
14. $w^2 + 20w + 96$
15. $5c^2 - 40c + 35$
16. $7r^3 + 63r^2 + 98r$
17. $v^2 + 2v - 48$
18. $q^2 - 8q - 48$
19. $2n^2 - 2n - 40$
20. $11x^2 - 14x + 3$
21. $12x^2 - 80x - 28$
22. $8y^2 + 18y + 9$
23. $6z^2 + 7z - 10$
24. $m^2 - 225$
25. $66h^2 - 216$
26. $27a^2 - 192$
27. $8c^5 + 28c^3$
28. $54a^4b^2 - 30ab^4$

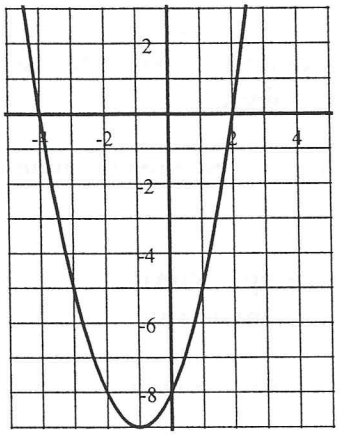
Alg 2 Quiz Review Sec 5-1 to 5-4 Fall 2014 **ANSWERS**

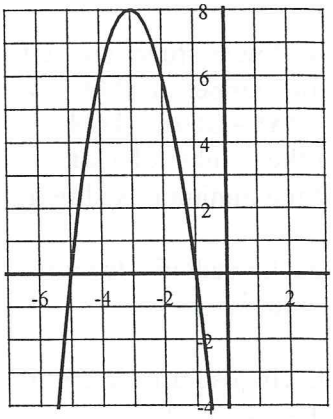
1. $y = 3x^2 - 8$
a) $LOS: x = 0$
b) $Vertex(0,-8)$
c) $y-int = -8$

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) $y-int = -10$



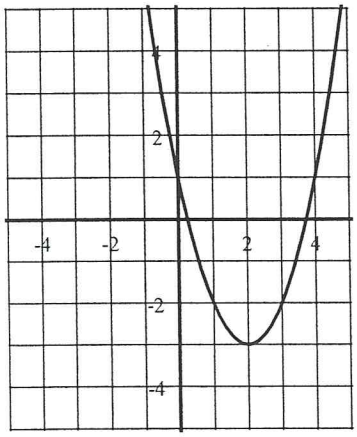


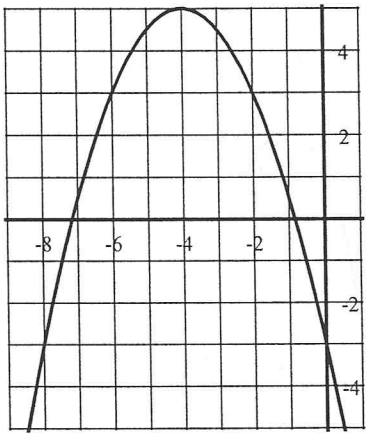


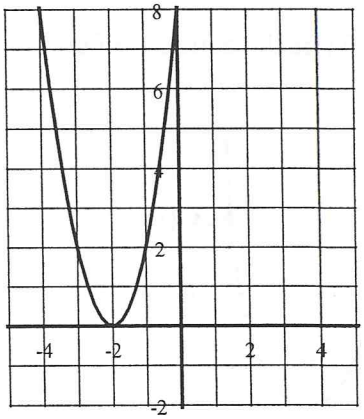
4. $y = (x-2)^2 - 3$
a) $LOS: x = 2$
b) $Vertex(2,-3)$
c) $y-int = 1$

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 additional exmployees hired = 4 b) Min expenses= \$3404

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. $4(3x+1)(x-7)$

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. $6ab^2(9a^3 - 5b^2)$