Algebra 1 Review Sections 10-1 to 10-4 Spring 2015

For 1 to 3 do the following:

a) State if it opens up or down.

b) State if the vertex is a maximum or a minimum.

1. $y = -4x^2 - 9x + 7$ 2. $y = 0.33x^2 - 14$ 3. $y = x^2 - 15x$

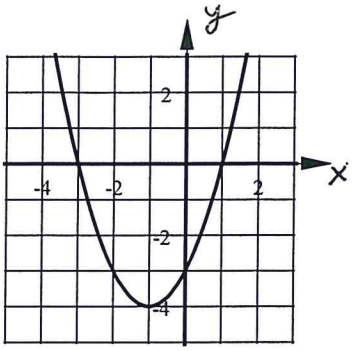
4. Put these quadratics in order from widest parabola to narrowest parabola.

A. $y = -7x^2 + 3x + 10$ B. $y = 0.7x^2 + 6x - 4$ C. $y = 3x^2 + x - 12$ D. $y = -4x^2 + 31$

5. Use the graph below.

a) State the coordinates of the Vertex

b) State the equation of the Line of Symmetry.



6. The vertex of a parabola is $(-4, 9)$. Write the equation for the Line of Symmetry

7. The Line of Symmetry for the parabola $y = x^2 - 12x + 1$ is $x = 6$. State the coordinates of the Vertex.

8. State the y-intercept for each parabola.

a) $y = 6x^2 - 3x + 17$ b) $y = -0.5x^2 + 13$ c) $y = 4x^2 + 11x$

9. Write the equation for the Line of Symmetry of each parabola.

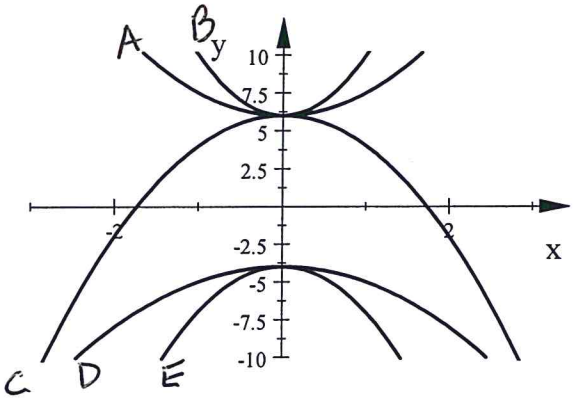
a) $y = 5x^2 - 40x + 71$ b) $y = -x^2 + 14x$ c) $y = 6x^2 + 24$

10. State the coordinates of the vertex for each parabola.

a) $y = 4x^2 - 4x$ b) $y = -8x^2 + 48$ c) $y = -2x^2 + 20x - 1$

11. Match each graph with its equation.

a) $y = -3x^2 - 4$ b) $y = -2x^2 + 6$ c) $y = 1.5x^2 + 6$ d) $y = -x^2 - 4$ e) $y = 4x^2 + 6$



For 12 and 13, graph each parabola using at least 5 points.

12. $y = -3x^2 + 8$ 13. $y = 2x^2 - 4$

14. Graph each parabola using at least 5 points.

a. $y = -2x^2 + 12x - 11$ b. $y = x^2 + 4x - 1$

15. State the square roots of 225.

16. Find each to the nearest hundredth.

a) $-\sqrt{35}$ b) $\sqrt{77}$ c) $\pm\sqrt{13}$

17. Simplify each.

a) $\sqrt{50}$ b) $\sqrt{245}$ c) $\sqrt{48}$ d) $\sqrt{99}$ e) $\sqrt{384}$

18. The area of a square is $56in^2$ find the length of each side to the nearest tenth.

Solve each equation using square roots. Round to the nearest tenth where necessary. Write no real solution where appropriate.

19. $2x^2 + 16 = 48$ 20. $6 - 4x^2 = 42$ 21. $3x^2 + 17 = x^2 + 31$

22. An object is shot into the air from the top of a 40 foot tall building. The following equation models the height of the object as a function of time: $h(t) = -16t^2 + 88t + 40$

a) Find the time it takes the object to reach its maximum height.

b) Find the maximum height of the object.

23. A company wants to minimize its expenses (E). Expenses depend on the number of workers they hire. The following equation models the company's expenses as a function of the number of workers:

$E(w) = 0.25w^2 - 26w + 1495$

a) Find the number of workers they should hire in order to minimize their expenses.

b) Find the minimum expenses.

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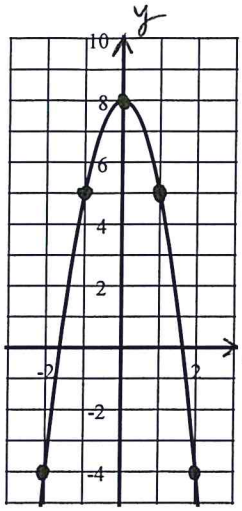
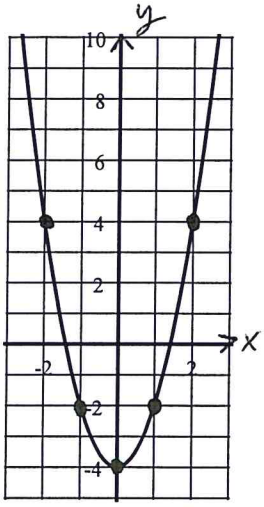
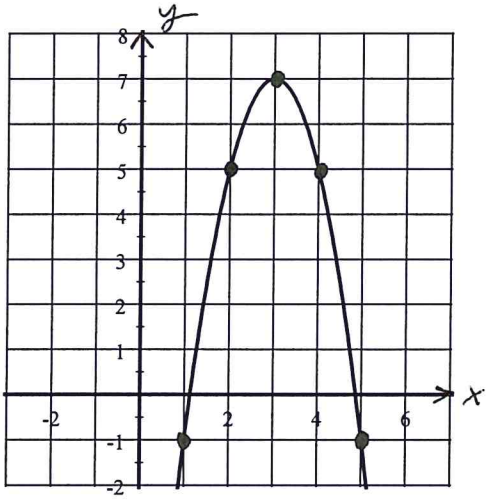
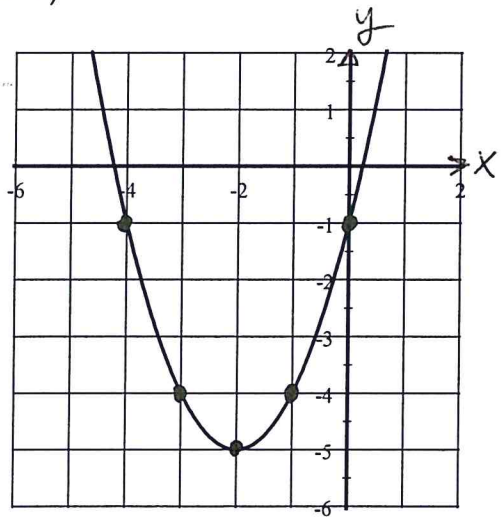
1. a) Opens down b) Vertex is a max 2. a) Opens up b) Vertex is a min
3. a) Opens up b) Vertex is a min 4. B, C, D, A 5. a) $(-1,-4)$ b) LOS: $x=-1$
6. $x=-4$ 7. $(6,-35)$ 8. a) $y-int=17$ b) $y-int=13$ c) $y-int=0$
9. a) $x=4$ b) $x=7$ c) $x=0$ 10. a) $(0.5,-1)$ b) $(0,48)$ c) $(5,49)$
11. a) E b) C c) A d) D e) B
12. 13. 14. a)







14. b)



15. ± 15 16. a) -5.92 b) 8.77 c) ± 3.61
17. a) $5\sqrt{2}$ b) $7\sqrt{5}$ c) $4\sqrt{3}$ d) $3\sqrt{11}$ d) $8\sqrt{6}$
18. each side is about 7.5 inches long.
19. $x=\pm 4$ 20. No real solution 21. $x=\pm 2.6$
22. a) 2.75 sec to reach max ht. b) Max ht of object is 161 ft.
23. a) 52 workers will minimize expenses. b) Min Expenses are $819