Algebra 1 Final Exam Review Ch 10 Spring 2016

1. Tell if each parabola opens up or down and then tell if the vertex is a maximum or a minimum.

a) $y = 0.35x^2 + x - 8$ b) $y = -7x^2 + 19$ c) $y = -x^2 + 9x + 15$

2. Put these parabolas in order from widest to narrowest

A $y = -9x^2 + 3x - 7$ B $y = -1.3x^2 - 4x + 8$ C $y = x^2 - 2x - 8$ D $y = 6x^2 + 13$

3. Find the equation for the Line of Symmetry and the coordinates of the vertex of each parabola.

a) $y = -6x^2 - 48x + 5$ b) $y = x^2 + 12x + 20$ c) $y = 8x^2 + 11$

4. Find the y-intercept for each parabola.

a) $y = -8x^2 + 6x - 5$ b) $y = 2x^2 + 15x$

5. Find all EXACT real solutions to each quadratic equation using square roots. Simplify square roots if possible.

a) $45 - 5x^2 = 0$ b) $2x^2 - 11 = 89$ c) $3x^2 + 40 = 28$

6. This equation has already been factored for you. Find the solutions. $5x(3x - 7)(x + 4) = 0$

7. Solve each equation by factoring.

a) $3x^2 + 24x = 0$ b) $x^2 - 10 = 3x$ c) $4x^2 + 32x + 64 = 0$

d) $9x^2 - 100 = 0$ e) $6x^2 + 7x = 3$ f) $3x^3 + 2x^2 - 48x - 32 = 0$

8. Solve each quadratic equation using the quadratic formula. Round decimal answers to the nearest hundredth.

a) $3x^2 - 4x + 1 = 0$ b) $x^2 + 8x - 5 = 0$ c) $2x^2 - 3x + 7 = 0$

d) $49x^2 - 70x + 25 = 0$

9. A ball is shot upwards from the top of a 30 foot cliff with an initial velocity of 112ft/sec. The following equation gives the height of the ball as a function of time. $h = -16t^2 + 112t + 30$

a) Find the time it takes the ball to reach it's maximum height.

b) Find the maxmimum height of the ball.

c) Find the time it takes the ball to reach the ground.

d) Find the time it takes to reach a height of 90 feet.

10. Simplify each radical. a) $\sqrt{176}$ b) $\sqrt{294}$ c) $\sqrt{432}$

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1. a) Opens up, Vertex is a Min b) Opens down, Vertex is a Max c) Opens down, Vertex is a Max

2. C, B, D, A

3. a) LOS: $x = -4$, Vertex $(-4, 101)$ b) LOS: $x = -6$, Vertex: $(-6, -16)$
c) LOS: $x = 0$, Vertex:$(0, 11)$

4. a) $y - int = -5$ b) $y - int = 0$

5. a) $x = \pm 3$ b) $x = \pm 5\sqrt{2}$ c) No Real Solution

6. $x = -4, 0, \frac{7}{3}$

7. a) $x = -8, 0$ b) $x = -2, 5$ c) $x = -4$ d) $x = \pm\frac{10}{3}$ e) $x = -\frac{3}{2}, \frac{1}{3}$ f) $x = 4, -\frac{2}{3}, -4$

8. a) $x = 0.33, 1$ b) $x = -8.58, 0.58$ c) No real solution d) $x = 0.71$

9. a) $t = 3.5$ sec b) Max height 226 ft c) $t = 7.26$ sec d) $t = 0.58$ and 6.42 sec

10. a)$4\sqrt{11}$ b) $7\sqrt{6}$ c) $12\sqrt{3}$