Test 3-2 Review

1) Write the quadratic formula without a use of an aid.
2) What is the discriminant of $g(x) = 2x^2 - 6x + 5$? What does it tell about the number of zeros the function has?
3) Use the Quadratic Formula to solve:
   a. $x^2 + 4x = 3$ b. $5x = 2x^2 + 8$ c. $9x^2 = -6x - 1$

4) The pilot of a copter plans to release a bucket of water on a forest fire. The height *y* in feet of the water *t* seconds after its release is modeled by $y = -16t^2 - 2t + 500$. The horizontal distance *x* in feet between the water and its point of release is modeled by $x = 91t$. At what horizontal distance for the fire should the pilot start releasing the water in order to hit its target?

5) $\dfrac{x^{11}y^5}{x^4y^7}$ 6) $\left(\dfrac{3x^2y^{-1}}{z^{-3}}\right)^4$ 7) $\sqrt[3]{\dfrac{8x^3}{3}}$ 8) $\left(2x^{-4}\right)^3\left(-3xy^2\right)^{-4}$

9) Graph $g(x) = -2\sqrt{x+4}$ and identify the domain and range in interval notation.

10) The formula $s = 2\pi\sqrt{\dfrac{l}{32}}$ represented the swing of a pendulum, where *s* is the time in seconds to swing back and forth, and *l* is the length of the pendulum in feet. Find the length of pendulum that makes one swing in 2 seconds. (Leave your answer in terms of π. Do not use a calculator.)

11) Write the new equation if the parent square root function is stretched vertically by a factor of 1/3, translated to the right 4, and translated down 2.

12) Write the new equation if the parent square root function has been reflected across the y-axis and translated up 5 units.

Solve and list all extraneous solutions.

13) $\sqrt{x+6} - 7 = -2$ 14) $\sqrt{6x-12} = x - 2$ 15) $x = \left(2x + 35\right)^{1/2}$

Look at old worksheets as well!