10.4: Use Square Roots to Solve Quadratic Equations

Goals: *Solve a quadratic equation by using square roots
*Identify the number of solutions a quadratic equation

To be able to use square roots the quadratic must be in the form:

Which means b =

*Want to isolate x^2, which when it is isolate is a new equation called:

****THINGS TO NOTICE****

· If $x^2 = d$ and $d > 0$, then

· If $x^2 = d$ and $d = 0$, then

· If $x^2 = d$ and $d < 0$, then

Solve:

Ex: $2x^2 = 8$

Ex: $m^2 - 18 = -18$

Ex: $b^2 + 12 = 5$

Ex: $3x^2 = 27$

Ex: $p^2 + 12 = 12$

Ex: $a^2 - 3 = -4$

Ex: $c^2 - 25 = 0$

Ex: $5w^2 + 12 = 8$

Ex: $2x^2 + 11 = 11$

Ex: $4z^2 = 9$

Ex: $25s^2 = 49$

Ex: $9m^2 = 100$

Ex: $25x^2 = 16$

Ex: $49b^2 + 64 = 0$

Approximate the solutions using a calculator. (Round to the nearest hundredth)

Ex: $3x^2 - 11 = 7$

Ex: $2x^2 - 10 = 6$

Ex: $x^2 + 4 = 14$

Ex: $3k^2 - 1 = 0$

Ex: $2p^2 - 7 = 2$

Solve:

Ex: $6(x - 4)^2 = 42$

Ex: $4(x + 6)^2 = 32$

Ex: $2(x - 2)^2 = 18$

Ex: $4(q - 3)^2 = 28$

Ex: $3(t + 5)^2 = 24$

Ex: During a hockey game a remote-controlled blimp flies above the crowd and drops a numbered tennis ball. The number corresponds to a prize. Use the diagram to find the amount of time the ball is in the air.