Name:_____ Date:_____

Notes
Algebra Section 10.4
Pages 652-658

To be able to use square roots the quadratic must be in the form: $y = x^2 + c$

Which means $b = 0$

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

THINGS TO NOTICE

· If $x^2 = d$ and $d > 0$, then there are 2 solutions, the positive and negative square roots of d

· If $x^2 = d$ and $d = 0$, then there is one solution, $x = 0$

· If $x^2 = d$ and $d < 0$, then there are no solutions because you cannot take the square root of a negative number

Solve:

Ex: $2x^2 = 8$

$x^2 = 4$
$x = \pm 2$

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

$m^2 = 0$
$m = 0$

Ex: $b^2 + 12 = 5$

$b^2 = -7$
No Solution

Ex: $3x^2 = 27$

$x = \pm 3$

Ex: $p^2 + 12 = 12$

$p = 0$

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

No Solution

Ex: $c^2 - 25 = 0$

$c = \pm 5$

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

No solution

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

$x = 0$

Ex: $4z^2 = 9$

$z = \pm\frac{3}{2}$

Ex: $25s^2 = 49$

$s = \pm\frac{7}{5}$

Ex: $9m^2 = 100$

$m = \pm\frac{10}{3}$

Ex: $25x^2 = 16$

$x = \pm\frac{4}{5}$

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

No solution

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

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

$x = \pm 2.45$

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

$x = \pm 2.83$

Ex: $x^2 + 4 = 14$

$x = \pm 3.16$

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

$k = \pm 0.58$

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

$p = \pm 2.12$

Solve:

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

$(x - 4)^2 = 7$
$x - 4 = \pm 2.65$
$x = -2.65 + 4 = 1.35$
$x = 2.65 + 4 = 6.65$

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

$(x + 6)^2 = 8$
$x + 6 = \pm 2.83$
$x = -3.17$ and -8.83

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

$(x - 2)^2 = 9$
$x - 2 = \pm 3$
$x = 5$ and -1

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

$q = 0.35$ and 5.65

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

$t = -7.83$ and -2.17

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.

$h = -16t^2 + 45$
$17 = -16t^2 + 45$
$-28 = -16t^2$
$\frac{7}{4} = t^2$
$t = 1.32$ seconds