**4.3 – SOLVING A QUADRATIC EQUATION IN VERTEX FORM**

Solve: $x^{2}=9 $ $x^{2}=10$ $x^{2}=0$ $x^{2}=-4$

The equation $x^{2}=a$ has 2 solutions if $a>0$
 1 solution (double) if $a=0$

 No real solution if $a<0$

If a quadratic equation is in vertex form, we use the previous property to determine the solutions:

Applications: Solve

1. $(x-3)^{2}-16=0$
2. $3(x+5)^{2}-40=0$

Note: Some quadratic equations can’t be factored. It doesn’t mean that they don’t have solutions, but that the solutions aren’t rational…
It is always possible to write a quadratic expression in vertex form. The equation will have 2 solutions if the perfect square equals a positive number, 1 solutions if it equals 0 and no solution if it equals a negative number.

Examples : Solve
a) $-2x^{2}+4x-1=0$ b) $2x^{2}-4x+3=0$

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