

**SOLVING QUADRATICS WORKSHEET #2****Solve by Completing the Square:**

- **Collect variables on the left, numbers on the right**
- **Divide ALL terms by  $a$  if  $a$  is not one; leave as fractions (no decimals!)**
- **Complete the square on the left – add  $\left(\frac{b}{2}\right)^2$  to BOTH sides**
- **Square root both sides (include  $\pm$  in the equation!)**
- **Solve for the variable (simplify all roots)**

1.) $x^2 + 4x - 5 = 0$	2.) $m^2 - 5m + 11 = 10$	3.) $3w^2 + 4w - 13 = 2 - 2w$
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4.) $x^2 - 7x - 18 = 0$	5.) $x^2 - 6x - 2 = 0$	6.) $3x^2 - 2 = 5x$
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**Solve by Quadratic Formula:**  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

7.) $x^2 + x = 12$	8.) $3x^2 = 7 - 2x$	9.) $x + 1 = x^2$
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10.) $4x^2 - 13x + 3 = 0$	11.) $2x^2 - 7x + 4 = 5x^2 - 5x + 3$	12.) $x^2 - 4x - 8 = 0$
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**Discriminant =  $b^2 - 4ac$**

If  $b^2 - 4ac < 0$ , then the equation has 2 imaginary solutions

If  $b^2 - 4ac = 0$ , then the equation has 1 real solution

If  $b^2 - 4ac > 0$ , then the equation has 2 real solutions

Determine whether the graphs intersect the x-axis in zero, one, or two points.

13.)  $y = 4x^2 - 12x + 9$

14.)  $y = 3x^2 - 13x - 10$

Find the discriminant of the quadratic equation and give the number and type of solutions of the equation.

15.)  $3x^2 - 5x = 1$

16.)  $x^2 = -3x - 7$

17.)  $9x^2 - 6x = 1$

18.)  $4x^2 = 5x + 3$