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**5.3 I can determine the number of real and non-real solutions for a quadratic equation.**

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Determine how many solutions and the type of solutions the following problems have by finding the discriminant.

1. $2x^2 - 5x - 3 = 0$                2. $x^2 + 10 = -6x$

Discriminant:_____        Discriminant:_____

Number of solutions:_____        Number of solutions:_____

Type of solutions:_____        Type of solutions:_____

3. $x^2 - 6x = -5$                4. $16x^2 + 8x + 1 = 0$

Discriminant:_____        Discriminant:_____

Number of solutions:_____        Number of solutions:_____
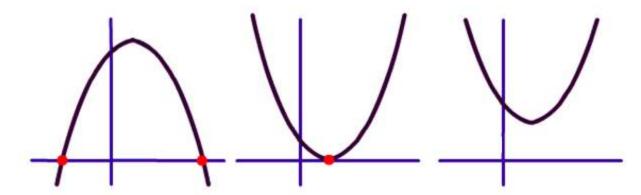
Type of solutions:_____        Type of solutions:_____

5. Label each of the following graphs with positive, negative, or zero discriminant.

6. If the solutions to a quadratic equation are $x = 2 \pm i\sqrt{3}$ is the discriminant positive, negative, or zero? Explain.

7. If a quadratic equation has 1 solution $x = 5$ is the discriminant positive, negative, or zero? Explain.

8. The solutions to a quadratic equation are $x = \frac{3}{2}$ $and$ $x = -2$. Is the discriminant positive, negative, or zero? Explain.