Name _____ Date _____

What Is a Quadratic Equation?

Remember

An equation of the form $ax^2 + bx + c = 0$, where a, b and c are real numbers and $a \neq 0$, is called a **quadratic equation** in x. The number a is the **coefficient of** x^2 (the leading coefficient), b is the **coefficient of** x, and c is the **constant term**. If $b = 0$ or $c = 0$, the equation is **incomplete**: we have already solved such equations.

1 ON YOUR OWN Find a, b and c. Is the equation complete or incomplete?

equation	a	b	c	
$2x^2 - 3x + 1 = 0$				complete / incomplete
$x^2 + 5 = 0$				complete / incomplete
$-x^2 + 4x = 0$				complete / incomplete
$3 - x^2 = 0$				complete / incomplete
$7x - 2x^2 - 1 = 0$				complete / incomplete
$x^2 = 0$				complete / incomplete

2 ON YOUR OWN Rearrange the equation so that the right side is 0. Is it a quadratic equation?

$x^2 + 3x = x^2 - 1$		yes / no
$x(x - 2) = 5$		yes / no
$(x + 1)^2 = x^2$		yes / no
$2x^2 = 3x^2 + x$		yes / no
$x^3 - x = 0$		yes / no
$(x - 1)(x + 1) = 2x$		yes / no

Names (pair) _____ Date _____

3 IN PAIRS Why does the definition say $a \neq 0$? Put $a = 0$ into $ax^2 + 3x - 6 = 0$. What kind of equation is it and how many solutions does it have?

4 IN PAIRS Rearrange into the form $ax^2 + bx + c = 0$ and find a, b and c.

$(x + 3)(x - 2) = 4x$

$2x(x - 1) = x^2 + 3$

$(2x - 1)^2 = 5$

$\frac{x^2}{2} - x = 3$

5 IN PAIRS Which of these equations can you already solve? Solve them. For the others, write *not yet*.

$x^2 - 9 = 0$

$x^2 - 9x = 0$

$x^2 - 9x + 14 = 0$

$x^2 + 9 = 0$

★ ON YOUR OWN **Exit card.** Find a, b and c for $3x - x^2 = 1$. Write one complete and one incomplete quadratic equation with $a = -2$.