

Sort It Out

Solving Quadratic Equations

Sort these equations into the four categories given, stating the solutions to each equation.

1	$(x - 3)(x + 5) = 0$	11	$3x^2 + 9x = 0$
2	$(2x - 3)(x - 1) = 0$	12	$4x^2 - 9 = 0$
3	$x(3x + 7) = 0$	13	$x^2 - 9x - 22 = 0$
4	$x^2 - 6x + 8 = 0$	14	$4x^2 + 12x + 9 = 0$
5	$x^2 + 7x - 30 = 0$	15	$12x - 3x^2 = 0$
6	$x^2 - 49 = 0$	16	$x^2 = x + 6$
7	$x^2 + 8x = 0$	17	$10 - 3x^2 = 13x$
8	$x^2 + 2x + 1 = 0$	18	$x(x - 5) = 14$
9	$2x^2 + 9x + 4 = 0$	19	$3x(x - 1) = 8 - x$
10	$5x^2 - 14x - 3 = 0$	20	$3(x + 3) = 9x(1 - x) + 8$

A	There are two distinct solutions which are both non-zero integers.		B	There are two distinct solutions - one or both are non-zero fractions.	
1 $x = 3, -5$	13 $x = 11, -2$	2 $x = \frac{3}{2}, 1$	17 $x = -5, \frac{2}{3}$		
4 $x = 4, 2$	16 $x = 3, -2$	9 $x = -4, -\frac{1}{2}$	19 $x = -\frac{4}{3}, 2$		
5 $x = -10, 3$	18 $x = 7, -2$	10 $x = -\frac{1}{5}, 3$			
6 $x = 7, -7$		12 $x = \frac{3}{2}, -\frac{3}{2}$			
C	There are two distinct solutions, one of which is zero.		D	There is one repeated solution.	
3 $x = 0, -\frac{7}{3}$			8 $x = -1$		
7 $x = 0, -8$			14 $x = -\frac{3}{2}$		
11 $x = 0, -3$			20 $x = \frac{1}{3}$		
15 $x = 0, 4$					