

DAY 4 Solving Quadratics by Factoring

Objective: To find quadratic solutions (roots, zeros, etc) by factoring, rather than graphing.

Example: Find the solutions of the equation $y = x^2 + 3x - 10$ by factoring.

- Step 1: Set the quadratic equation equal to 0. $0 = x^2 + 3x - 10$
 Step 2: Factor the left side. $0 = (x+5)(x-2)$
 Step 3: Set each factor equal to 0 and solve for x.
 Step 4: Write your answer using curly braces.

YOUR TURN! Solve the quadratics by factoring.

1. $x^2 + 4x + 3 = 0$ $(x+3)(x+1) = 0$ $x+3=0$ $x+1=0$ $x=-3$ $x=-1$ $\{-3, -1\}$	2. $x^2 + 11x + 24 = 0$
3. $x^2 + x - 2 = 0$	4. $x^2 + 6x - 27 = 0$
5. $x^2 - 10x + 21 = 0$	6. $x^2 - x - 20 = 0$
7. $x^2 + 10x + 25 = 0$	8. $x^2 - 8x + 16 = 0$
9. $x^2 - 8x = 0$	10. $3x^2 + 15x = 0$ $3x(x+5) = 0$ $3x=0$ $x+5=0$ $x=0$ $x=-5$ $\{0, -5\}$

11. $6x^2 - 12x = 0$	12. $8x^2 - 6x = 0$
13. $x^2 - 64 = 0$	14. $x^2 - 25 = 0$
15. $4x^2 - 81 = 0$ $(2x-9)(2x+9)$ $2x-9=0$ $2x+9=0$ $x=\frac{9}{2}$ $x=-\frac{9}{2}$	16. $9x^2 - 49 = 0$

$\left\{ \frac{9}{2}, -\frac{9}{2} \right\}$

2 EQUATIONS NOT IN STANDARD FORM...
You must MOVE-FACTOR-SOLVE!

17. $x^2 + 4x = 21$	18. $x^2 - 45 = 4x$
19. $x^2 - 5x - 64 = 7x$ $-7x$ $-7x$ $x^2 - 12x - 64 = 0$ $(x-16)(x+4) = 0$ $x=16$ $x=-4$ $\{16, -4\}$	20. $x^2 - 10x + 49 = 4x + 1$
21. $4x^2 = 28x$	22. $11x^2 = x^2 + 8x$ $x=0$ $-11x^2 - 11x^2$ $0 = -10x^2 + 8x$ $0 = x(-10x + 8)$ $-10x+8=0$ $-10x=-8$ $x=\frac{8}{10}$ $x=\frac{4}{5}$ $\left\{ \frac{4}{5}, 0 \right\}$
23. $x^2 = 36$	24. $16x^2 = 9$