

7. $4x^2 + 7x - 15 = 0$

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$$(x+12)\left(x-\frac{5}{4}\right) = 0$$

$$(x+3)(4x-5) = 0$$

$$x = -3 \quad x = \frac{5}{4}$$

$$\frac{-7 \pm \sqrt{(-7)^2 - 4(4)(-15)}}{2(4)} = \frac{-7 \pm \sqrt{289}}{8} = \frac{-7 \pm 17}{8}$$

$$\frac{-7+17}{8} = \frac{5}{4} \quad \frac{-7-17}{8} = -3$$

8. $x^2 + 3x = 10$

$$x^2 + 3x - 10 = 0$$

$$\frac{-3 \pm \sqrt{9 - 4(1)(-10)}}{2(1)} = \frac{-3 \pm \sqrt{49}}{2}$$

$$\frac{-3+7}{2} = 2$$

$$\frac{-3-7}{2} = -5$$

9. $x^2 - x + 3 = 0$

$A=1 \quad B=-1 \quad C=3$

$$\frac{1 \pm \sqrt{(-1)^2 - 4(1)(3)}}{2(1)} = \frac{1 \pm \sqrt{1-12}}{2} = \frac{1 \pm \sqrt{-11}}{2}$$

$$x = \frac{1 \pm i\sqrt{11}}{2}$$

10. $2x^2 - 14x = -23$

$$2x^2 - 14x + 23 = 0$$

$$\frac{14 \pm \sqrt{(-14)^2 - 4(2)(23)}}{2(2)} = \frac{14 \pm \sqrt{12}}{4}$$

$$= \frac{7 \pm \sqrt{3}}{2}$$

11. $x^2 = 2x + 48$

$$x^2 - 2x - 48 = 0$$

$$(x+6)(x-8) = 0$$

$$x = -6 \quad x = +8$$

12. $2x^2 + 39 = -18x$

$$2x^2 + 18x + 39 = 0$$

$$\frac{-18 \pm \sqrt{(18)^2 - 4(2)(39)}}{2(2)} = \frac{-18 \pm \sqrt{12}}{4}$$

$$\frac{-18 \pm 2\sqrt{3}}{4} = \frac{-9 \pm \sqrt{3}}{2}$$

13. $5x^2 + 3x + 1 = 0$

$$\frac{-3 \pm \sqrt{9 - 4(1)(5)}}{2(5)} = \frac{-3 \pm \sqrt{-11}}{10}$$

$$\frac{-3 \pm i\sqrt{11}}{10}$$

14. $5x^2 + 50x + 125 = 0$

$$5(x^2 + 10x + 25) = 0$$

$$5(x+5)(x+5) = 0$$

$$x = -5$$

Solve using the best method: Factoring, Completing the Square or Quadratic Formula

Express all solutions in simplest form.

<p>1. $x^2 + 4x - 9 = 13$</p> $x^2 + 4x - 22 = 0$ $\frac{-4 \pm \sqrt{16 - 4(1)(-22)}}{2(1)} = \frac{-4 \pm \sqrt{104}}{2}$ $\frac{-4 \pm 2\sqrt{26}}{2} = -2 \pm \sqrt{26}$ <p style="text-align: right;">2 104 2 52 2 26 13</p>	<p>2. $x^2 + 7x + 12 = 0$</p> $(x+3)(x+4) = 0$ $x = -4, -3$
<p>3. $7(x-3)^2 = 35$</p> $7(x^2 - 6x + 9) - 35 = 0$ $7x^2 - 6x - 26 = 0$ $\frac{6 \pm \sqrt{36 - 4(7)(-26)}}{14} = \frac{6 \pm \sqrt{764}}{14}$ $\frac{6 \pm 2\sqrt{191}}{14} = \frac{3 \pm \sqrt{191}}{7}$ <p style="text-align: right;">2 764 2 382 191</p>	<p>4. $4x^2 = 36$</p> $4x^2 - 36 = 0$ $4(x^2 - 9) = 0$ $4(x-3)(x+3) = 0$ $x = -3, 3$
<p>5. $x^2 = 81$</p> $x^2 - 81 = 0$ $(x-9)(x+9) = 0$ $x = -9, 9$	<p>6. $x^2 + 9x + 38 = 13$</p> $x^2 + 9x + 25 = 0$ $\frac{-9 \pm \sqrt{81 - 4(1)(25)}}{2(1)} = \frac{-9 \pm \sqrt{-19}}{2}$ $\frac{-9 \pm i\sqrt{19}}{2}$
<p>7. $3x^2 - 6x = 13$</p> $3x^2 - 6x - 13 = 0$ $\frac{6 \pm \sqrt{36 - 4(3)(-13)}}{6} = \frac{6 \pm \sqrt{192}}{6}$ $\frac{6 \pm 8\sqrt{3}}{6} = \frac{3 \pm 4\sqrt{3}}{3}$ <p style="text-align: right;">2 92 2 46 2 23 23</p>	<p>8. $x^2 + 6x - 8 = 0$</p> $\frac{-6 \pm \sqrt{36 - 4(1)(-8)}}{2} = \frac{-6 \pm \sqrt{68}}{2}$ $\frac{-6 \pm 2\sqrt{17}}{2} = -3 \pm \sqrt{17}$ <p style="text-align: right;">2 68 2 34 17</p>
<p>9. $x^2 = 3x + 8$</p> $x^2 - 3x - 8 = 0$ $\frac{3 \pm \sqrt{9 - 4(1)(-8)}}{2} = \frac{3 \pm \sqrt{41}}{2}$	<p>10. $x^2 - 121 = 0$</p> $(x-11)(x+11) = 0$ $x = -11, 11$
<p>11. $(x+2)^2 - 6 = 11$</p> $x^2 + 4x - 2 = 11$ $x^2 + 4x - 13 = 0$ $\frac{-4 \pm \sqrt{16 - 4(1)(-13)}}{2} = \frac{-4 \pm \sqrt{68}}{2}$ $\frac{-4 \pm 2\sqrt{17}}{2} = -2 \pm \sqrt{17}$ <p style="text-align: right;">2 68 2 34 17</p>	<p>12. $5x^2 - 7x + 13 = 0$</p> $\frac{7 \pm \sqrt{49 - 4(5)(13)}}{2(5)} = \frac{7 \pm \sqrt{-211}}{10}$ $\frac{7 \pm i\sqrt{211}}{10}$