

① $x^2 + 7x - 18 = 0$ $7^2 - 4(1 \cdot -18) = 121$ discriminant

Quadratic Formula $\frac{-b \pm \sqrt{b^2 - 4(ac)}}{2a}$

$a = 1$ $b = 7$ $c = -18$

$\frac{-7 \pm \sqrt{7^2 - 4(1 \cdot -18)}}{2 \cdot 1}$ simplify $\frac{-7 \pm 11}{2}$ use your discriminant here.

$\frac{-7 + 11}{2} = 2$

$\frac{-7 - 11}{2} = -9$

$x = 2, -9$

*Style Note

typically order low $\rightarrow$ high $-9, 2$

② $5.89x^2 - 13.09x + 7.26 = 0$ discriminant

$(-13.09)^2 - 4(5.89 \cdot 7.26) = .3025$

$a = 5.89$ $b = -13.09$ $c = 7.26$

$\frac{13.09 \pm \sqrt{(-13.09)^2 - 4(5.89 \cdot 7.26)}}{2 \cdot 5.89}$ Plug in your #

$x = \frac{654.5 + 50\sqrt{0.3025}}{589}$

$x = \frac{654.5 - 50\sqrt{0.3025}}{589}$

$x \approx 1.1579, 1.0645$ -2.5

decimals are rounded,
so use " $\approx$ " instead of " $=$ ".

Be sure to close
parentheses and
make sure the
radical " $\sqrt{\quad}$ " covers the top
of everything it needs to.

40.5
50

-3.5

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$$(3) \quad 25x^2 - 20x + 7 = 0$$

$$(-20)^2 - 4(25 \cdot 7) = -300$$

a: discriminant

$$a = 25 \quad b = -20 \quad c = 7$$

$$\frac{20 \pm \sqrt{(-20)^2 - 4 \cdot (25 \cdot 7)}}{2 \cdot 25}$$

Try to form
this habit!
-1

$$\frac{20 \pm 10i\sqrt{3}}{2 \cdot 25}$$

$$\frac{20 \pm 10i\sqrt{3}}{50}$$

$$x = \frac{2 \pm i\sqrt{3}}{5}$$

$$(4) \quad 3mx^2 - 2wx + 5r = 0$$

$$\frac{3mx^2}{3x^2} = \frac{2wx}{3x^2} + \frac{-5r}{3x^2}$$

$$m = \frac{2wx}{3x^2} + \frac{-5r}{3x^2} \rightarrow \frac{2w}{3x} - \frac{5r}{3x}$$

discriminant

$$a = 3m \quad b = -2w \quad c = 5r$$

$$x = \frac{2w \pm \sqrt{(-2w)^2 - 4 \cdot (3m)(5r)}}{2(3m)}$$

"b² - 4ac" w
OK,
but how d
it becom
this?
-1/2

$$x = \frac{2w \pm 2\sqrt{w^2 - 15mr}}{6m}$$

$$x = \frac{w \pm \sqrt{w^2 - 15mr}}{3m}$$

-1.5

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⑤ $x^2 + 7x - 18 = 0$

product -18 sum 7

$(x-2)(x+9) = 0$ true

$x-2 = 0$

$+2 +2$

$x = 2$

$x+9 = 0$

$-9 -9$

$x = -9$

$x = 2, -9$



⑥ $589x^2 - 1309x + 726 = 0$

$a = 589$ $b = -1309$ $c = 726$

Miracle happens

here

$a \cdot c = 589 \cdot 726 = 427614$

where are the guesses?

$589x^2 - 627x - 682x + 726 = 0$

-2

$19x(31x-33) - 22(31x-33) = 0$

$(31x-33)(19x-22) = 0$

$31x - 33 = 0$ $x = \frac{33}{31}$

$19x - 22 = 0$ $x = \frac{22}{19}$

$x = \frac{33}{31}, \frac{22}{19}$

-2

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$$\textcircled{7} \quad x^2 + 7x - 18 = 0$$
$$\qquad\qquad +18 \quad +18$$

$$x^2 + 7x = 18$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{7}{2}\right)^2$$

$$x^2 + 7x + \left(\frac{7}{2}\right)^2 = 18 + \left(\frac{7}{2}\right)^2$$

$$x^2 + 7x + \frac{49}{4} = \frac{121}{4}$$

$$\left(x + \frac{7}{2}\right)^2 = \frac{121}{4}$$

$$x + \frac{7}{2} = \pm \sqrt{\frac{121}{4}}$$

$$x + \frac{7}{2} = \pm \frac{\sqrt{121}}{\sqrt{4}}$$

$$x + \frac{7}{2} = \pm \frac{\sqrt{11^2}}{\sqrt{4}}$$

$$x + \frac{7}{2} = \pm \frac{11}{2}$$
$$\qquad\qquad -\frac{7}{2} \qquad\qquad -\frac{7}{2}$$

$$x = \pm \frac{11}{2} - \frac{7}{2}$$

$$x = -\frac{11}{2} - \frac{7}{2} = -9$$

$$x = +\frac{11}{2} - \frac{7}{2} = 2$$

good!

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⑧ $x^2 - 24x - 9$ $\left(\frac{b}{2}\right)^2$
 $a=1$ $b=-24$ $c=-9$
 $d=\frac{b}{2a}$ $d=\frac{-24}{2 \cdot 1}$ $d=-12$
 $-9 - \frac{(-24)^2}{4 \cdot 1}$ $-9 - 144 = -153$

$(x-12)^2 - 153$ Another step or two

want this $\rightarrow x = 12 \pm \sqrt{153}$ -1

⑨ $5x^2 - 2x + 3 = 0$
 -3 -3
 $\frac{5x^2}{5} - \frac{2x}{5} = \frac{-3}{5} \rightarrow x^2 - \frac{2x}{5} = \frac{-3}{5}$
 $\left(\frac{b}{2}\right)^2 = \left(-\frac{1}{5}\right)^2$
 $x^2 - \frac{2x}{5} + \left(-\frac{1}{5}\right)^2 = \frac{-3}{5} + \left(-\frac{1}{5}\right)^2$
 $x^2 - \frac{2x}{5} + \frac{1}{25} = \frac{-3}{5} + \left(-\frac{1}{5}\right)^2$
 $x^2 - \frac{2x}{5} + \frac{1}{25} = -\frac{14}{25}$
 $\left(x - \frac{1}{5}\right)^2 = -\frac{14}{25}$
 $x - \frac{1}{5} = \pm \sqrt{-\frac{14}{25}}$

I have a "+"
here, changes
+/- of the
"1"
5 part of
answer.
You did it
right though.
😊

Where is the
"=" ? -1

$x = \frac{1}{5} \pm \frac{i\sqrt{14}}{5}$

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$$(10) \quad 4x^2 - 16x + 11 = 0$$

$$\frac{4x^2}{4} - \frac{16x}{4} = \frac{-11}{4}$$

$$x^2 - \frac{16x}{4} = \frac{-11}{4} \rightarrow x^2 - 4x = -\frac{11}{4}$$

$$\left(\frac{b}{2}\right)^2 = (-2)^2$$

$$x^2 - 4x + (-2)^2 = -\frac{11}{4} + (-2)^2$$

$$x^2 - 4x + 4 = \frac{5}{4}$$

$$(x-2)^2 = \frac{5}{4}$$

$$x-2 = \pm \sqrt{\frac{5}{4}} \rightarrow \frac{\sqrt{5}}{\sqrt{4}}$$

$$x-2 = \pm \frac{\sqrt{5}}{\sqrt{2^2}}$$

$$x-2 = \pm \frac{\sqrt{5}}{2}$$

+2 +2

$$x = \pm \frac{\sqrt{5}}{2} + 2$$

This could mean $\pm \left(\frac{\sqrt{5}}{2} + 2\right)$

Really Should be $2 \pm \frac{\sqrt{5}}{2}$.