

$$x^2 - 7x - 18 = 0$$

$$\begin{aligned} a &= 1, b = -7 \\ c &= -18 \end{aligned}$$

$$\begin{aligned} b^2 - 4ac \\ (-7)^2 - 4(1)(-18) \\ = 49 - -28 \\ \underline{D = 77} \end{aligned}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-7) \pm \sqrt{77}}{2(1)}$$

$$x = \frac{7 \pm \sqrt{77}}{2}$$

$$b^2 - 4ac = (-7)^2 - 4(1)(-18) = \frac{49}{50}$$

4

4

"math 101"

$$3.62x^2 - 9.71x - 15.68 = 0$$

$$\begin{aligned} a &= 3.62 \\ b &= -9.7 \\ c &= -15.68 \end{aligned}$$

$$b^2 - 4ac$$

$$= (-9.71)^2 - 4(3.62)(-15.68)$$

$$= 94.2841 + 227.0464$$

Missing

$$D = 321.3305$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{9.71 \pm \sqrt{321.3305}}{2(3.62)}$$

(exact answer.)

$$x = \frac{9.71 \pm \sqrt{321.3305}}{7.24}$$

SD

OK

$$x = \frac{9.71 + \sqrt{321.3305}}{7.24}$$

$$x = \frac{9.71 - \sqrt{321.3305}}{7.24}$$

$$x = \underline{\underline{3.817084786}}$$

$$x \approx 3.8171$$

$$x \approx -1.1348$$

5

"math  
121"

$$2x^2 - 6x + 7 = 0$$

$$D = b^2 - 4ac$$

$$D = (-6)^2 - 4(2)(7)$$

$$D = 36 - 56$$

$$D = -20$$

$$\begin{cases} a = 2 \\ b = -6 \\ c = 7 \end{cases}$$

$$x = \frac{6 \pm \sqrt{-20}}{4}$$

$$x = \frac{6 \pm 2i\sqrt{5}}{4}$$

→ show simplification

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

4.5

"math  
|a|"  $dx^2 + 3wx - 8\pi = 0$

$$D (3w)^2 - 4(d)(-8\pi)$$
$$9w^2 + 32\pi d$$

$\left\{ \begin{array}{l} a = d \\ b = 3w \\ c = -8\pi \end{array} \right.$

$$x = \frac{-3w \pm \sqrt{9w^2 + 32\pi d}}{2d}$$

5

"math  
|a|"  $x^2 - 4x - 77 = 0$

$$(x - 11)(x + 7) = 0$$

9.5

$$\begin{array}{r} x - 11 = 0 \\ + 11 \quad + 11 \end{array}$$

$$x = 11$$

$$\begin{array}{r} x + 7 = 0 \\ - 7 \quad - 7 \end{array}$$

and  $x = -7$

✓✓

→ OR!

$$28x^2 - 100x + 75 = 0$$

$$(2x - 5)(14x - 15) = 0$$

→ No supporting work.

$$\begin{array}{r} 2x - 5 = 0 \\ + 5 \quad + 5 \\ \hline 2x = 5 \end{array}$$

$$\frac{2x}{2} = \frac{5}{2}$$

$$x = \frac{5}{2}$$

$$\begin{array}{r} 14x - 15 = 0 \\ + 15 \quad + 15 \\ \hline 14x = 15 \end{array}$$

$$14x = 15$$

$$x = \frac{15}{14}$$

4

22/9

"math  
1a1"

$$x^2 + 6x - 15 = 0$$

$$x^2 + 6x + \underline{9} = \underline{-15} + 9$$

$$\sqrt{(x+3)^2} = \sqrt{-4}$$

$$x+3 = \pm \sqrt{-4}$$

$$x+3 = \pm i \sqrt{4}$$

$$-3 \quad -3$$

$$x = -3 \pm i \sqrt{4}$$

$$\begin{array}{l} 2 \sqrt{24} \\ 2 \sqrt{12} \\ 2 \sqrt{6} \\ 3 \end{array}$$

$$\sqrt{24} = 2\sqrt{6} \text{ show}$$

+

"Math 121"

$$x^2 + 6x - 15 = 0$$

+15 +15

$$x^2 + 6x + (3)^2 = 15 + (3)^2$$

$\left(\frac{b}{2}\right)^2 = (3)^2$

$$x^2 + 6x + 9 = 24$$

$$(x + 3)^2$$

$$(x + 3)^2 = 24$$

$$x + 3 = \pm \sqrt{24}$$

$$x + 3 = \pm 2\sqrt{6}$$

- 2                      - 3

→ Show support.

$$x = \pm 2\sqrt{4} - 3$$

$$x = \pm 2\sqrt{4} - 3$$

~~~~~  
"math 121"

$$x^2 - 5x - 11 = 0$$

$$x^2 - 5x - 11 = 0$$

$$\begin{matrix} +5 & +5 \end{matrix} \text{ No}$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-5}{2}\right)^2$$

$$x^2 - 5x + \left(\frac{-5}{2}\right)^2 = 11 + \left(\frac{-5}{2}\right)^2$$



$$x^2 - 5x + \frac{25}{4} = 11 + \left(-\frac{5}{2}\right)^2$$

$$x^2 - 5x + \frac{25}{4} = 11 + \frac{25}{4}$$

$$x^2 - 5x + \frac{25}{4} = 11 \cdot \frac{4}{4} + \frac{25}{4}$$

$$x^2 - 5x + \frac{25}{4} = \frac{11 \cdot 4}{4} + \frac{25}{4}$$

Inefficient style

$$x^2 - 5x + \frac{25}{4} = \frac{11 \cdot 4 + 25}{4}$$

$$x^2 - 5x = 11$$

$$x^2 - 5x + \left(\frac{5}{2}\right)^2 = 11 + \frac{25}{4}$$

$$\left(x - \frac{5}{2}\right)^2 = \frac{44 + 25}{4} = \frac{69}{4}$$

$$x - \frac{5}{2} = \pm \sqrt{\frac{69}{4}}$$

$$x = \frac{5 \pm \sqrt{69}}{2}$$

$$x^2 - 5x + \frac{25}{4} = \frac{44 + 25}{4}$$

$$x^2 - 5x + \frac{25}{4} = \frac{69}{4}$$

$$\left(x - \frac{5}{2}\right)^2 = \frac{69}{4}$$

$$x - \frac{5}{2} = \pm \sqrt{\frac{69}{4}}$$

$$x - \frac{5}{2} = \pm \frac{\sqrt{69}}{\sqrt{4}}$$

$$x - \frac{5}{2} = \pm \frac{\sqrt{69}}{2}$$

$2^2 \rightarrow \sqrt{2^2}$

$$x - \frac{5}{2} = \pm \frac{\sqrt{69}}{2}$$

$$\boxed{x - \frac{5}{2} = \pm \frac{\sqrt{69}}{2}}$$

4.5