

* Solve: $x^2 - 2x - 15 = 0$

Clarita: factoring

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

$$\boxed{x = -3 \quad x = 5}$$

$a \cdot c = -15$	$b = -2$
$1 \cdot -15$	-14
$3 \cdot -5$	-2

Tia: CTS + $\sqrt{\quad}$ method

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

$$0 = \left(x^2 - 2x + \frac{1}{4}\right) - 15 - \frac{1}{4}$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-2}{2}\right)^2 = (-1)^2 = 1$$

$$0 = (x-1)^2 - 16$$

$$\sqrt{(x-1)^2} = \sqrt{16}$$

$$x-1 = \pm 4$$

$$x = 1 \pm 4 \rightarrow \begin{cases} x = 1 + 4 = 5 \\ x = 1 - 4 = -3 \end{cases}$$

Tehani: QF

$$a = 1$$

$$b = -2$$

$$c = -15$$

$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-15)}}{2(1)}$$

$$x = \frac{2 \pm \sqrt{4 + 60}}{2} = \frac{2 \pm \sqrt{64}}{2}$$

$$x = \frac{2 \pm 8}{2} \rightarrow x = \frac{2+8}{2} = \frac{10}{2} = 5$$

$$x = \frac{2-8}{2} = \frac{-6}{2} = -3$$

* solve: $2x^2 + 3x + 1 = 0$

Clarita: factoring

$a \cdot c = 2 \mid b = 3$

1 · 2	3
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$a \neq 1$

	$x + 1$
$2x$	$2x^2 \quad 2x$
$+1$	$1x \quad 1$

$0 = (x+1)(2x+1)$

$x+1=0$
 $-1 \quad -1$
 $x = -1$

$2x+1=0$
 $+1 \quad -1$

$\frac{2x}{2} = \frac{-1}{2}$

$x = -\frac{1}{2} = -0.5$

Tia: CTS + $\sqrt{\quad}$ method

$\frac{2x^2}{2} + \frac{3x}{2} + \frac{1}{2} = \frac{0}{2}$

to simplify:
 $\frac{8}{16} - \frac{9}{16} = -\frac{1}{16}$

$x^2 + \frac{3}{2}x + \frac{1}{2} + \frac{1}{2} - \frac{9}{16} = 0$

$(\frac{b}{2})^2 = (\frac{3/2}{2})^2 = (\frac{3}{4})^2 = \frac{9}{16}$

$(\frac{b}{2})^2 = (\frac{1.5}{2})^2 = (0.75)^2 = 0.5625$

$(x + 0.75)^2 - 0.0625 = 0$

$(x + 3/4)^2 - \frac{1}{16} = 0$
 $+ \frac{1}{16} \quad + \frac{1}{16}$

$\sqrt{(x + 3/4)^2} = \sqrt{\pm \frac{1}{16}}$

$x + \frac{3}{4} = \pm \frac{1}{4}$
 $- \frac{3}{4} \quad - \frac{3}{4}$

$x = -\frac{3}{4} \pm \frac{1}{4}$

$x = -\frac{3}{4} + \frac{1}{4} = -\frac{2}{4}$

$-\frac{3}{4} - \frac{1}{4} = -1$

$-\frac{1}{2}$

-1

Tehami: QF

$$a=2$$

$$b=3$$

$$c=1$$

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

$$x = \frac{-3 \pm \sqrt{9-8}}{4}$$

$$x = \frac{-3 \pm \sqrt{1}}{4}$$

$$x = \frac{-3 \pm 1}{4}$$

↗ $x = \frac{-3+1}{4} = \frac{-2}{4} = \textcircled{-1/2}$

↘ $x = \frac{-3-1}{4} = \frac{-4}{4} = \textcircled{-1}$

* solve: $x^2 + 4x - 8 = 0$

Clarita: factoring

$a \cdot c = -8$	$b = 4$
-1 · 8	7
-2 · 4	2
-4 · 2	-2
-8 · 1	-7

no whole
solutions

Tia: ~~CTF~~ CTS + $\sqrt{\quad}$ method

Tid: CTS + $\sqrt{\quad}$ method

$$x^2 + 4x + 4 - 8 - \frac{4}{2} = 0$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{4}{2}\right)^2 = (2)^2 = 4$$

$$(x+2)^2 - \frac{12}{2} = 0$$

$$\sqrt{(x+2)^2} = \sqrt{12}$$

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

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

$$\sqrt{12}$$

Handwritten prime factorization of 12: $2 \times 2 \times 3$. A circle is drawn around the 2s, and a line is drawn under the 3.

Tehani: QF

$$a=1$$

$$b=4$$

$$c=-8$$

$$x = \frac{-4 \pm \sqrt{4^2 - 4(1)(-8)}}{2(1)}$$

$$x = \frac{-4 \pm \sqrt{16+32}}{2}$$

$$x = \frac{-4 \pm \sqrt{48}}{2}$$

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

simplify!

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

$$\sqrt{48} = 4\sqrt{3}$$

Handwritten prime factorization of 48: $2 \times 2 \times 2 \times 2 \times 3$. A circle is drawn around the first two 2s, and a line is drawn under the 3.