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$$\frac{4x^2 + 10x - 3 = 0}{4}$$

$$x^2 + \frac{10}{4}x - \frac{3}{4} = 0$$

$$\frac{10}{4} \div 2 = \frac{5}{4}$$

$$\left(\frac{5}{4}\right)^2 = \frac{25}{16}$$

completing
square

square
root
method

$$\frac{x^2 + \frac{10}{4}x + \frac{25}{16} = \frac{12}{16} + \frac{25}{16}}$$

$$\left(x + \frac{5}{4}\right)^2 = \frac{37}{16}$$

$$x + \frac{5}{4} = \pm \sqrt{\frac{37}{16}}$$

$$x + \frac{5}{4} = \pm \frac{\sqrt{37}}{4}$$

$$\frac{-\frac{5}{4} \pm \frac{\sqrt{37}}{4}}{4}$$

$$= x = \frac{-5 \pm \sqrt{37}}{4}$$

$$\#26 \quad y = 2x^2 - 8x + 1$$

$$y = 2(x^2 - 4x + 4) + 1 - 8$$

$$y = 2(x - 2)^2 - 7$$

(vertex form)

$$\frac{4}{2} = 2$$


$$2^2 = 4$$

#27 $y = -x^2 - 2x + 3$
re-write in vertex form

$$y = -(x^2 + 2x + 1) + 3 + 1$$

$$y = -(x+1)^2 + 4$$

Jade K: $y = -x^2 - 2x + 3$



$$-y = (x^2 + 2x + 1) - 1 - 3$$

$$-y = (x+1)^2 - 4$$

$$y = -(x+1)^2 + 4$$

#33 $\frac{3x^2 - 4x}{3} = \frac{2}{3}$

$$x^2 - \frac{4}{3}x + \frac{4}{9} = \frac{2}{3} + \frac{4}{9}$$

$$\frac{4}{3} \div 2 = \frac{2}{3}$$

$$\left(\frac{2}{3}\right)^2 = \frac{4}{9}$$

$$\left(x - \frac{2}{3}\right)^2 = \frac{10}{9}$$

$$\#37 \quad \frac{3x^2 + x}{3} = \frac{\frac{2}{3}}{3}$$

$$x^2 + \frac{1}{3}x + \frac{1}{36} = \frac{2}{9} + \frac{1}{36}$$

$$\frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$$

$$\left(\frac{1}{6}\right)^2 = \frac{1}{36}$$

$$\left(x + \frac{1}{6}\right)^2 = \frac{9}{36}$$

$$x + \frac{1}{6} = \pm \frac{3}{6}$$

$$x = -\frac{1}{6} \pm \frac{3}{6}$$

$$x = -\frac{1}{6} - \frac{3}{6} = -\frac{4}{6} = -\frac{2}{3}$$

$$x = -\frac{1}{6} + \frac{3}{6} = \frac{2}{6} = \frac{1}{3}$$

$$x = -\frac{2}{3}, \frac{1}{3}$$

Quadratic Formula

always works -

- get 2 answers,

real or complex

Standard Form: $ax^2 + bx + c = 0$

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

$$b^2 - 4ac$$

discriminant

discriminant = 0 1 real

" > 0 2 real

" < 0 2 complex
(0 real)