

9-19-17 1st Try

$$\textcircled{1} \quad x^2 + 15x + 50 = 0$$

$$(x+5)(x+10) = 0$$

$\frac{50}{1, 50}$
 $\frac{50}{2, 25}$
 $\frac{50}{5, 10}$

$$\begin{array}{l} \checkmark \\ x+5=0 \\ -5 \quad -5 \\ \hline x = -5 \end{array} \quad \text{OR} \quad \begin{array}{l} \checkmark \\ x+10=0 \\ -10 \quad -10 \\ \hline x = -10 \end{array}$$

$$\textcircled{2} \quad \underline{2}x^2 + 11x + \underline{14} = 0$$

$$\begin{array}{l} \frac{2}{1, 2} \quad 16x(x+1)(2x+14) \quad \frac{14}{1, 14} \\ \quad \quad 2x(x+14)(2x+1) \quad 2, 7 \\ \quad \quad 11x(x+2)(2x+7) \quad \checkmark \\ \quad \quad \quad (x+7)(2x+2) \end{array}$$

$$(x+2)(2x+7) = 0$$

$$\begin{array}{l} x+2=0 \\ -2 \quad -2 \\ \hline x = -2 \end{array} \quad \text{OR} \quad \begin{array}{l} 2x+7=0 \\ -7 \quad -7 \\ \hline 2x = -7 \\ \frac{2x}{2} = \frac{-7}{2} \\ x = -3\frac{1}{2} \end{array}$$

OR

$$\textcircled{3} \quad \underline{6}x^2 + 43x + \underline{7} = 0$$

$$\begin{array}{l} \frac{6}{1, 6} \quad 13x(x+1)(6x+7) \quad \frac{7}{1, 7} \\ \frac{6}{2, 3} \quad 43x(x+7)(6x+1) \\ \quad \quad (2x+1)(3x+7) \\ \quad \quad (2x+7)(3x+1) \end{array}$$

$$(x+7)(6x+1) = 0$$

$$\begin{array}{l} x+7=0 \\ -7 \quad -7 \\ \hline x = -7 \end{array} \quad \text{OR} \quad \begin{array}{l} 6x+1=0 \\ -1 \quad -1 \\ \hline 6x = -1 \\ \frac{6x}{6} = \frac{-1}{6} \\ x = \frac{-1}{6} \end{array}$$

$$\textcircled{4} \quad \frac{2}{a}x^2 + \frac{9}{b}x + \frac{1}{c} = 0$$

Not factorable

\therefore we use Quadratic formula

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

$$a = 2$$

$$b = 9$$

$$c = 1$$

$$4ac = 8$$

$$x = \frac{-9 \pm \sqrt{9^2 - 8}}{2 \cdot 2}$$

$$x = \frac{-9 \pm \sqrt{73}}{4}$$

$$x = \frac{-9 + \sqrt{73}}{4}$$

$$\text{OR } x = \frac{-9 - \sqrt{73}}{4}$$

$$x \approx -.11$$

$$\text{OR } x \approx -4.38$$

$$\textcircled{5} \quad 3x^2 + 8x + 2 = 0$$

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

$$a = 3$$

$$b = 8$$

$$c = 2$$

$$4ac = 24$$

$$x = \frac{-8 \pm \sqrt{8^2 - 24}}{2 \cdot 3}$$

$$x = \frac{-8 \pm \sqrt{40}}{6}$$

$$x = \frac{-8 + \sqrt{40}}{6}$$

$$\text{OR } x = \frac{-8 - \sqrt{40}}{6}$$

$$x \approx -.28$$

$$\text{OR } x \approx -2.38$$

$$\textcircled{6} \quad 6x^2 + 13x + 5 = 0$$

$$a = 6$$

$$b = 13$$

$$c = 5$$

$$4ac = 120$$

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

$$x = \frac{-13 \pm \sqrt{13^2 - 120}}{2 \cdot 6}$$

$$x = \frac{-13 \pm \sqrt{49}}{12}$$

$$x = \frac{-13 \pm 7}{12}$$

$$x = \frac{-13 + 7}{12}$$

$$\text{OR } x = \frac{-13 - 7}{12}$$

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

$$\text{OR } x = -\frac{2}{3}$$

9-19-17 3rd Tr:y

$$\textcircled{1} \quad x^2 - 7x - 30 = 0$$

$$(x+3)(x-10) = 0 \quad \begin{array}{l} 30 \\ 1, 30 \\ 2, 15 \\ \underline{+3, +10} \\ 5, 6 \end{array}$$

✓

$$\begin{array}{r} x+3=0 \\ -3 \quad -3 \\ \hline x=-3 \end{array} \quad \text{OR} \quad \begin{array}{r} x-10=0 \\ +10 \quad +10 \\ \hline x=10 \end{array}$$

$$\textcircled{2} \quad 2x^2 + 11x + 14 = 0$$

$$\begin{array}{l} \underline{2} \\ 1, 2 \end{array} \quad \begin{array}{l} 16x(x+1)(2x+7) \\ 21x(x+14)(2x+1) \\ 11x(x+2)(2x+7) \checkmark \\ (x+7)(2x+2) \end{array} \quad \begin{array}{l} 14 \\ 1, 14 \\ 2, 7 \end{array}$$

$$(x+2)(2x+7) = 0$$

$$\begin{array}{r} x+2=0 \\ -2 \quad -2 \\ \hline x=-2 \end{array} \quad \text{OR} \quad \begin{array}{r} 2x+7=0 \\ -7 \quad -7 \\ \hline 2x=-7 \\ \frac{2x}{2} = \frac{-7}{2} \\ x=-3\frac{1}{2} \end{array}$$

$$\textcircled{3} \quad 6x^2 + 43x + 7 = 0$$

$$\begin{array}{l} \underline{6} \\ 1, 6 \\ 2, 3 \end{array} \quad \begin{array}{l} 13x(x+1)(6x+7) \\ 43x(x+7)(6x+1) \checkmark \\ (2x+1)(3x+7) \\ (2x+7)(3x+1) \end{array} \quad \begin{array}{l} 7 \\ 1, 7 \end{array}$$

$$(x+7)(6x+1) = 0$$

$$\begin{array}{r} x+7=0 \\ -7 \quad -7 \\ \hline x=-7 \end{array} \quad \text{OR} \quad \begin{array}{r} 6x+1=0 \\ -1 \quad -1 \\ \hline 6x=-1 \\ \frac{6x}{6} = \frac{-1}{6} \\ x=-\frac{1}{6} \end{array}$$

$$\textcircled{4} \quad \frac{2x^2}{a} + \frac{7x}{b} + \frac{1}{c} = 0$$

Will not factor, so we

Use the quadratic formula.

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

$$a = 2$$

$$b = 7$$

$$c = 1$$

$$4ac = 8$$

$$x = \frac{-7 \pm \sqrt{7^2 - 8}}{2 \cdot 2}$$

$$x = \frac{-7 \pm \sqrt{41}}{4}$$

$$x = \frac{-7 + \sqrt{41}}{4} \quad \text{OR} \quad x = \frac{-7 - \sqrt{41}}{4}$$

$$x \approx -.15 \quad \text{OR} \quad x \approx -3.35$$

$$\textcircled{5} \quad \frac{3x^2}{a} + \frac{10x}{b} - \frac{5}{c} = 0$$

$$a = 3$$

$$b = 10$$

$$c = -5$$

$$4ac = -60$$

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

$$x = \frac{-10 \pm \sqrt{10^2 - -60}}{2 \cdot 3}$$

$$x = \frac{-10 \pm \sqrt{160}}{6}$$

$$x = \frac{-10 + \sqrt{160}}{6} \quad \text{OR} \quad x = \frac{-10 - \sqrt{160}}{6}$$

$$x \approx .44$$

$$\text{OR} \quad x \approx -3.77$$

$$\textcircled{6} \quad 2x^2 + 14x + 5 = 0$$

$$a = 2$$

$$b = 14$$

$$c = 5$$

$$4ac = 40$$

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

$$x = \frac{-14 \pm \sqrt{196 - 40}}{4}$$

$$x = \frac{-14 \pm \sqrt{156}}{4}$$

$$x = \frac{-14 + \sqrt{156}}{4}$$

OR

$$x = \frac{-14 - \sqrt{156}}{4}$$

$$x \approx -.38$$

OR

$$x \approx -6.62$$

9-19-17 4th Try

① $x^2 + 8x - 20 = 0$

$(x-2)(x+10) = 0$

$$\begin{array}{r} 20 \\ 1, 20 \\ \hline -2, 10 \\ \hline 4, 5 \end{array}$$

$$\begin{array}{r} x-2=0 \quad \text{OR} \quad x+10=0 \\ +2 \quad +2 \quad \quad \quad -10 \quad -10 \\ \hline x=2 \quad \text{OR} \quad x=-10 \end{array}$$

② $2x^2 + 11x + 14 = 0$

$$\begin{array}{r} 2 \\ 1, 2 \end{array} \quad \begin{array}{l} 16x(x+1)(2x+14) \\ 27x(x+14)(2x+1) \\ 11x(x+2)(2x+7) \checkmark \\ (x+7)(2x+2) \end{array} \quad \begin{array}{r} 14 \\ 1, 14 \\ 2, 7 \end{array}$$

$(x+2)(2x+7) = 0$

$$\begin{array}{r} x+2=0 \quad \text{OR} \quad 2x+7=0 \\ -2 \quad -2 \quad \quad \quad -7 \quad -7 \\ \hline x=-2 \quad \quad \quad \frac{2x}{2} = \frac{-7}{2} \\ \quad \quad \quad \text{OR} \quad \quad \quad x = -3\frac{1}{2} \end{array}$$

$$\textcircled{3} \quad 5x^2 + 17x + 3 = 0$$

$$\begin{array}{l} \frac{5}{1,5} \quad (x \quad 1)(5x \quad 3) \quad \frac{3}{1,3} \\ (x \quad 3)(5x \quad 1) \end{array}$$

Not factorable
So what do we do?

We use the quadratic formula.

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

$$\frac{5}{a}x^2 + \frac{17}{b}x + \frac{3}{c} = 0$$

$$\begin{array}{l} a = 5 \\ b = 17 \\ c = 3 \\ 4ac = 60 \end{array}$$

$$x = \frac{-17 \pm \sqrt{17^2 - 60}}{2 \cdot 5}$$

$$x = \frac{-17 \pm \sqrt{289 - 60}}{10}$$

$$x = \frac{-17 \pm \sqrt{229}}{10}$$

$$\begin{array}{l} \swarrow \quad \searrow \\ x = \frac{-17 + \sqrt{229}}{10} \quad \text{or} \quad x = \frac{-17 - \sqrt{229}}{10} \\ x \approx -1.9 \quad \text{or} \quad x \approx -3.21 \end{array}$$

$$\textcircled{4} \quad 3x^2 + 5x - 2 = 0$$

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

$$\begin{array}{l} a = 3 \\ b = 5 \\ c = -2 \\ 4ac = -24 \end{array}$$

$$x = \frac{-5 \pm \sqrt{5^2 - (-24)}}{2 \cdot 3}$$

$$x = \frac{-5 \pm \sqrt{49}}{6}$$

$$x = \frac{-5 + 7}{6} \quad \text{or} \quad x = \frac{-5 - 7}{6}$$

$$x = \frac{2}{6} = \frac{1}{3} \quad x = \frac{-12}{6} = -2$$

