

More solving quadratics! (multi-step)

$$\textcircled{1} \quad \frac{6(x-4)^2}{6} = \frac{42}{6}$$

$$\sqrt{(x-4)^2} = \sqrt{7}$$

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

$$\begin{array}{r} +4 \quad +4 \\ \hline x = 4 \pm \sqrt{7} \end{array}$$

$$x = 4 + \sqrt{7}$$

$$\boxed{x \approx 6.65}$$

$$x = 4 - \sqrt{7}$$

$$\boxed{x \approx 1.35}$$

$$\textcircled{3} \quad \frac{3}{2}(n+1)^2 = \left(\frac{33}{2}\right)^2$$

$$\sqrt{(n+1)^2} = \sqrt{22}$$

$$n+1 = \pm\sqrt{22}$$

$$\begin{array}{r} -1 \quad -1 \\ \hline n = -1 \pm \sqrt{22} \end{array}$$

$$\textcircled{2} \quad \frac{20}{2} = \frac{2(m+5)^2}{2}$$

$$\sqrt{10} = \sqrt{(m+5)^2}$$

$$\pm\sqrt{10} = m+5$$

$$\begin{array}{r} -5 \\ \hline -5 \pm \sqrt{10} = m \end{array}$$

$$m = -5 + \sqrt{10} \quad \& \quad m = -5 - \sqrt{10}$$

$$m \approx 1.84 \quad \& \quad m \approx -8.16$$

$$\textcircled{4} \quad 3x^2 - 35 = 45 - 2x^2$$

$$\begin{array}{r} +2x^2 \quad +35 \quad +35 \quad +2x^2 \\ \hline 5x^2 = 80 \end{array}$$

$$\frac{5x^2}{5} = \frac{80}{5}$$

$$\sqrt{x^2} = \sqrt{16}$$

$$x = \pm 4$$

$$\textcircled{5} \quad 11x^2 + 3 = 5(4x^2 - 3)$$

$$\begin{array}{r} -11x^2 \qquad \qquad \qquad -11x^2 \\ \hline 3 = 5(4x^2 - 3) - 11x^2 \end{array}$$

$$3 = 20x^2 - 15 - 11x^2$$

$$20x^2 - 11x^2 = 15 - 3$$

$$\textcircled{6} \quad 11\left(\frac{m-7}{2}\right)^2 - 20 = 101$$

$$\begin{array}{r} +20 \quad +20 \\ \hline 11\left(\frac{m-7}{2}\right)^2 = 121 \end{array}$$

$$\frac{11\left(\frac{m-7}{2}\right)^2}{11} = \frac{121}{11}$$

$$3 = 5(4x^2 - 3) - 11x^2$$

$$3 = 20x^2 - 15 - 11x^2$$

$$3 = 9x^2 - 15$$

$$\begin{array}{r} +15 \\ 3 = 9x^2 - 15 \\ \hline \end{array}$$

$$\frac{18}{9} = \frac{9x^2}{9}$$

$$\sqrt{2} = \sqrt{x^2}$$

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

$$\pm 1.41 \approx x$$

$$\frac{11\left(\frac{m-7}{2}\right)^2}{11} = \frac{121}{11}$$

$$\sqrt{\left(\frac{m-7}{2}\right)^2} = \sqrt{11}$$

$$2\left(\frac{m-7}{2}\right) = (\pm\sqrt{11})2$$

$$\begin{array}{r} m-7 = \pm 2\sqrt{11} \\ +7 \quad +7 \\ \hline \end{array}$$

$$m = 7 \pm 2\sqrt{11}$$

$$m = 7 + 2\sqrt{11} \quad \& \quad m = 7 - 2\sqrt{11}$$

$$m \approx 37 \quad \& \quad m \approx 13.63$$