

$$20. (1 + x - x^2 = 0) \quad \text{MPE}$$

$$\begin{array}{r} x^2 - x - 1 = 0 \\ +1 \quad +1 \end{array}$$

$$x^2 - x = 1$$

$$+ \left(-\frac{1}{2}\right)^2 + \left(-\frac{1}{2}\right)^2 \rightarrow 1 + \frac{1}{4} = \frac{5}{4}$$

$$\frac{}{(x - \frac{1}{2})^2 = \frac{5}{4}}$$

$$\begin{aligned} (x^2 - x + \frac{1}{4}) &= \\ (x - \frac{1}{2})(x - \frac{1}{2}) &= \\ (x - \frac{1}{2})^2 &= \end{aligned}$$

$$x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$$

$$\begin{array}{r} +\frac{1}{2} \quad +\frac{1}{2} \\ \hline x = \frac{1}{2} \pm \sqrt{\frac{5}{4}} \end{array}$$

$$\frac{1}{2} + \sqrt{\frac{5}{4}} \approx \boxed{1.62}$$

$$\frac{1}{2} - \sqrt{\frac{5}{4}} \approx \boxed{-.62}$$

22. $3x^2 - 24x - 5 = 0$

$$\frac{3x^2 - 24x}{3} = \frac{5}{3}$$

$$x^2 - 8x = \frac{5}{3}$$

$$\frac{x^2 - 8x + (-4)^2 + (-4)^2}{(x-4)^2} = \frac{5}{3}$$

$$x-4 = \pm \sqrt{\frac{53}{3}}$$

$$x = 4 \pm \sqrt{\frac{53}{3}}$$

$$\frac{5}{3} + 16 = \frac{53}{3}$$

$$4 + \sqrt{\frac{53}{3}} \approx \boxed{8.20}$$

$$4 - \sqrt{\frac{53}{3}} \approx \boxed{-.20}$$

$$24. \quad 5x^2 - 20x - 20 = 5$$

$$\begin{array}{rcl} & +20 & +20 \\ \hline \frac{5x^2 - 20x}{5} & & = \frac{25}{5} \end{array}$$

$$x^2 - 4x = 5$$

$$\begin{array}{rcl} & +(-2)^2 & +(-2)^2 \\ \hline (x-2)^2 & = & 9 \end{array}$$

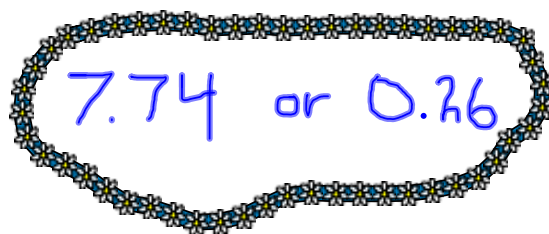
$$\begin{array}{rcl} x-2 & = & \pm\sqrt{9} \\ +2 & & +2 \\ \hline x & = & 2 \pm 3 \end{array}$$

$$2+3 = \boxed{5}$$

$$2-3 = \boxed{-1}$$

Now you try! Use Completing the Square to solve for x:

$$2x^2 - 16x + 4 = 0$$



7.74 or 0.26