Show that $2\sqrt{5}$ is a solution for $x^2 = 2x^2 - 20$

$(2\sqrt{5})^2$	$2(2\sqrt{5})^2 - 20$
$\underline{2^2(\cancel{\sqrt{}}5)^{\cancel{2}}}$	$2(\underline{2^2(\sqrt{5})^2}) - 20$
$4(5)$	$2\cdot(4(5)) - 20$
20	$40 - 20$

$$\boxed{20 = 20}$$

Show that $-\sqrt{6}$ is a solution for $2k^2+86=3k^2+80$

$$\boxed{2(-\sqrt{6})^2+86 \qquad = \qquad 3(-\sqrt{6})^2+80}$$

$$2(-1)^2(\cancel{\sqrt{}}6)^{\cancel{2}}+86 \qquad\qquad 3(-1)^2(\cancel{\sqrt{}}6)^{\cancel{2}}+80$$

$$2(1)(6)+86 \qquad\qquad 3(6)+80$$

$$12+86 \qquad\qquad 18+80$$

$$98 \qquad\qquad 98$$

Show that $-3\sqrt{2}$ **is a solution to** $2t^2 - 18 = t^2$

Property – The Power of a Quotient Property.
The power of a quotient can be written as the quotient of the power of the numerator and the power of the denominator. Example: $\left(\frac{\sqrt{3}}{2}\right)^2 = \frac{\left(\sqrt{3}\right)^2}{2^2}$

Show that $\frac{\sqrt{3}}{2}$ is a solution for $3y^2 = y^2 + \frac{3}{2}$

$$3 \cdot \left(\frac{\sqrt{3}}{2}\right)^2 = \left(\frac{\sqrt{3}}{2}\right)^2 + \frac{3}{2}$$

$$3 \cdot \frac{(\sqrt{3})^2}{2^2} = \frac{(\sqrt{3})^2}{2^2} + \frac{3}{2}$$

$$3 \cdot \frac{3}{4} \qquad \frac{3}{4} + \frac{3}{2} \cdot \frac{2}{2}$$

$$\frac{9}{4} = 2.25 \qquad \frac{3}{4} + \frac{6}{4} = \frac{9}{4}$$

Show that $-\dfrac{\sqrt{6}}{3}$ is a solution for $-y^2+2=2y^2$

$$-\left(-1\cdot\frac{\sqrt{6}}{3}\right)^2+2$$

$$2\left(-\frac{\sqrt{6}}{3}\right)^2$$

$$-\left((-1)^2\,\frac{(\sqrt{6})^2}{(3)^2}\right)+2$$

$$2\left((-1)^2\,\frac{(\sqrt{6})^2}{(3)^2}\right)$$

$$-\frac{6}{9}+\frac{2}{1}\cdot\frac{9}{9}$$

$$2\left(\frac{6}{9}\right)$$

$$-\frac{6}{9}+\frac{18}{9}$$

$$\frac{12}{9}$$

$$\frac{12}{9}$$

Show that $3-\sqrt{2}$ is a solution for $x^2-6x+7=0$

$$(3-\sqrt{2})^2 - 6(3-\sqrt{2}) + 7 \overset{?}{=} 0$$

F O I L

$$(3 + {}^{-}\sqrt{2})(3 + {}^{-}\sqrt{2}) + {}^{-}6(3 + {}^{-}\sqrt{2}) + 7 = 0$$

$$9 + {}^{-}3\sqrt{2} + {}^{-}3\sqrt{2} + \sqrt{4} + {}^{-}18 + 6\sqrt{2} + 7 = 0$$

$$0 + 0 = 0$$

$$0 = 0$$