Square Root Applications

Solve the equation $y = 2\sqrt{x-4} - 3$ for x.

$$y + 3 = 2\sqrt{x-4}$$

Isolate the square root:
Addition and subtraction 1st

$$\frac{y+3}{2} = \sqrt{x-4}$$

Isolate the square root:
Multiplication and division 2nd

$$\left(\frac{y+3}{2}\right)^2 = x - 4$$

Square to get rid of the square root

$$\left(\frac{y+3}{2}\right)^2 + 4 = x$$

Isolate the x

Solve the equation $y = a\sqrt{x-h} + k$ for x.

$$y - k = a\sqrt{x-h}$$

Isolate the square root:
Addition and subtraction 1st

$$\frac{y-k}{a} = \sqrt{x-h}$$

Isolate the square root:
Multiplication and division 2nd

$$\left(\frac{y-k}{a}\right)^2 = x - h$$

Square to get rid of the square root

$$\left(\frac{y-k}{a}\right)^2 + h = x$$

Isolate the x

Solve the equation $m = \dfrac{\sqrt{2h}}{(t-v)}$ for h.

$$m(t - v) = \sqrt{2h}$$ Isolate the square root

$$mt - mv = \sqrt{2h}$$ Distribute the m

$$(mt - mv)^2 = 2h$$ Square to get rid of the square root

$$\frac{(mt - mv)^2}{2} = h$$ Isolate h

Solve the equation $P_0 = \sqrt{\dfrac{k+3}{w}} + P$ for k.

$$P_0 - P = \sqrt{\dfrac{k+3}{w}}$$ Isolate the square root

$$(P_0 - P)^2 = \dfrac{k+3}{w}$$ Square to get rid of the square root

$$w(P_0 - P)^2 = k + 3$$ Isolate k: multiply by w

$$w(P_0 - P)^2 - 3 = k$$ Isolate k: subtract 3