

Square Roots

1. Find the positive value of x that makes the equation true: $x^2 = 256^{-1}$.

2. Find the positive value of x that makes each equation true. Check your solution.

a) $x^2 = 225$

b) $x^2 = 361^{-1}$

Square Roots

1. Find the positive value of x that makes the equation true: $x^2 = 256^{-1}$.

$$\begin{aligned}x^2 &= 256^{-1} \\ \sqrt{x^2} &= \sqrt{256^{-1}} \\ x &= \sqrt{256^{-1}} \\ x &= \sqrt{\frac{1}{256}} \\ x &= \frac{1}{16} \\ x &= 16^{-1}\end{aligned}$$

Check:

$$\begin{aligned}(16^{-1})^2 &= 256^{-1} \\ 16^{-2} &= 256^{-1} \\ \frac{1}{16^2} &= 256^{-1} \\ \frac{1}{256} &= 256^{-1} \\ 256^{-1} &= 256^{-1}\end{aligned}$$

2. Find the positive value of x that makes each equation true. Check your solution.

a) $x^2 = 225$

$$\begin{aligned}x^2 &= 225 \\ \sqrt{x^2} &= \sqrt{225} \\ x &= \sqrt{225} \\ x &= 15\end{aligned}$$

Check:

$$\begin{aligned}15^2 &= 225 \\ 225 &= 225\end{aligned}$$

b) $x^2 = 361^{-1}$

$$\begin{aligned}x^2 &= 361^{-1} \\ \sqrt{x^2} &= \sqrt{361^{-1}} \\ x &= \sqrt{361^{-1}} \\ x &= \sqrt{\frac{1}{361}} \\ x &= \frac{1}{19} \\ x &= 19^{-1}\end{aligned}$$

Check:

$$\begin{aligned}(19^{-1})^2 &= 361^{-1} \\ 19^{-2} &= 361^{-1} \\ \frac{1}{19^2} &= 361^{-1} \\ \frac{1}{361} &= 361^{-1} \\ 361^{-1} &= 361^{-1}\end{aligned}$$

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