

Name: Key

UNIT 9 DAY 16

HOMEWORK



Solve for x.

1. $(7)^2 = (\sqrt{19-3x})^2$

$$\begin{array}{r} 49 = 19 - 3x \\ -19 \quad -19 \\ \hline 30 = -3x \\ x = -10 \end{array}$$

Check: $7 = \sqrt{19-3x}$

$$\begin{aligned} 7 &= \sqrt{19-3(-10)} \\ 7 &= \sqrt{19+30} \\ 7 &= \sqrt{49} \\ 7 &= 7 \quad \text{☺} \end{aligned}$$

2. $\frac{9\sqrt{16a}}{9} = \frac{72}{9}$

$$\begin{aligned} (\sqrt{16a})^2 &= (8)^2 \\ \frac{16a}{16} &= \frac{64}{16} \end{aligned}$$

$\rightarrow a = 4$

Check:

$$\begin{aligned} 9\sqrt{16a} &= 72 \\ 9\sqrt{16(4)} &= 72 \\ 9\sqrt{64} &= 72 \\ 9(8) &= 72 \\ 72 &= 72 \quad \text{☺} \end{aligned}$$

3. $\sqrt{p+2} + 8 = 15$

$$\begin{aligned} (\sqrt{p+2})^2 &= (7)^2 \\ p+2 &= 49 \\ p &= 47 \end{aligned}$$

Check:

$$\begin{aligned} \sqrt{p+2} + 8 &= 15 \\ \sqrt{47+2} + 8 &= 15 \\ \sqrt{49} + 8 &= 15 \\ 7 + 8 &= 15 \\ &\text{☺} \end{aligned}$$

4. $(\sqrt{15-x})^2 = (\sqrt{x-9})^2$

$$\begin{aligned} 15-x &= x-9 \\ 24 &= 2x \\ x &= 12 \end{aligned}$$

Check:

$$\begin{aligned} \sqrt{15-x} &= \sqrt{x-9} \\ \sqrt{15-12} &= \sqrt{12-9} \\ \sqrt{3} &= \sqrt{3} \\ &\text{☺} \end{aligned}$$

5. $\sqrt{5x-1} = -3$

$$5x-1 = 9$$

$$5x = 10$$

$$x = 2$$

\downarrow extraneous solution!

Check:

$$\begin{aligned} \sqrt{5x-1} &= -3 \\ \sqrt{5(2)-1} &= -3 \\ \sqrt{9} &= -3 \\ 3 &\neq -3 \end{aligned}$$