

3) SOLVE:

$$-2 + \frac{1}{2}n = \frac{1}{2}(-n + 10)$$

SHOW WORK:

Distribute First

$$\begin{aligned}-2 + \frac{1}{2}n &= \frac{1}{2}(-n + 10) \\ -2 + \frac{1}{2}n &= -\frac{1}{2}n + 5 \\ +2 &\quad +2 \\ \frac{1}{2}n &= -\frac{1}{2}n + 7 \\ +\frac{1}{2}n &\quad +\frac{1}{2}n \\ \underline{1n} &= 7 \\ n &= 7\end{aligned}$$

Get Rid of the Fraction

$$\begin{aligned}2(-2 + \frac{1}{2}n) &= 2 \cancel{\frac{1}{2}} (-n + 10) \\ -4 + 1n &= -n + 10 \\ +4 &\quad +4 \\ 1n &= -n + 14 \\ +n &\quad +n \\ \frac{2n}{2} &= \frac{14}{2} \\ n &= 7\end{aligned}$$

(Note: A pink box contains the text "you multiplied the other side of the = sign by 2, so you have to do the same to this side also")

(your answers should be the same *)*

- 4) The shortest of an isosceles triangle is $2x - 2$ inches long. The two longer sides (each) are 4 inches longer than the shortest side. The perimeter of the triangle is 20 inches.

What is the length of each of the longer sides of the triangle? _____ inches

SHOW WORK HINT: $\text{perimeter} = (\text{side length}) + (\text{side length}) + (\text{side length})$

- ① Draw the triangle and label the sides



- ② Set up your equation, and solve for x .

$$\frac{2x-4}{\text{Side 1}} + 2(\cancel{2x-2+4}) = \frac{20}{\text{perimeter from problem}}$$

Distribute first
Combine like terms

$$\begin{aligned}2x-4 + 2x-4+8 &= 20 \\ 4x - 8 + 8 &= 20 \\ 4x &= 20 \\ \frac{4x}{4} &= \frac{20}{4} \\ x &= 5\end{aligned}$$

- ③ Use x to solve the equation for the long side of the triangle.