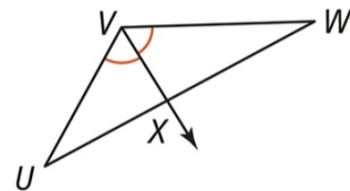


Triangle-Angle-Bisector Theorem

If a ray bisects an angle of a triangle, then it divides the opposite side into two segments that are proportional to the other two sides of the triangle.

PROOF: SEE EXERCISE 16.

If... $\angle UVX \cong \angle WVX$

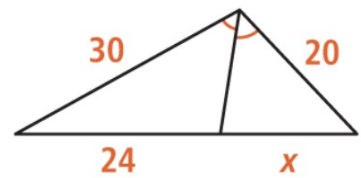


Then... $\frac{UX}{WX} = \frac{UV}{WV}$

$$\frac{UX}{UV} = \frac{WX}{WV}$$

Find the value of x.

Enter your answer.



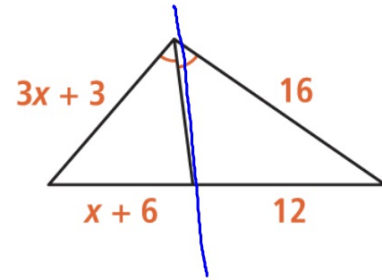
$$\frac{30}{24} = \frac{20}{x}$$

$$30x = 480$$

$$x = 16$$

Find the value of x .

Enter your answer.



$$\frac{3x+3}{x+6} = \frac{16}{12}$$

$$12(3x+3) = 16(x+6)$$

$$36x+36 = 16x+96$$

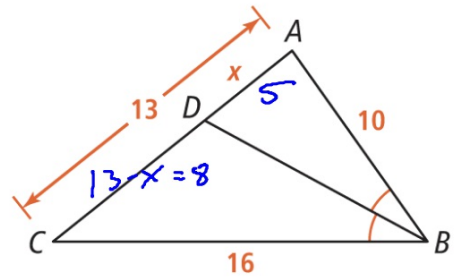
$$20x+36 = 96$$

$$20x = 60$$

$$x = 3$$

What are the values of AD and DC ?

SOLUTION



$$\frac{x}{10} = \frac{13-x}{16}$$

$$16x = 10(13-x)$$

$$16x = 130 - 10x$$

$$26x = 130$$

$$x = 5$$

5. a. What is the value of x ?

Enter your answer $\frac{3x+3}{3x-7} = \frac{18}{12}$
 $12(3x+3) = 18(3x-7)$

CHECK ANSWER

$$3x + 36 = 54x - 126$$

$$36 = 18x - 126$$

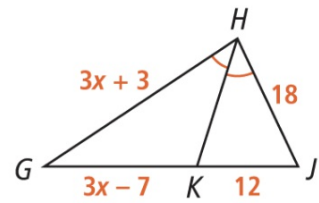
$$162 = 18x$$

$$x = 9$$

b. What are the values of GH and GK ?

$$GH = 3(9) + 3$$
$$= 30$$

$$GK = 3(9) - 7$$
$$= 20$$

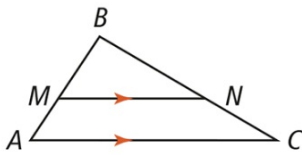


Proportions in Triangles

THEOREM 7-5

Side-Splitter Theorem

If... $\overline{MN} \parallel \overline{AC}$

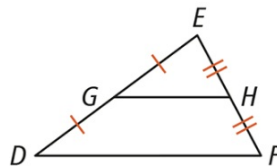


Then... $\frac{AM}{MB} = \frac{CN}{NB}$

THEOREM 7-6

Triangle Midsegment Theorem

If... $\overline{DG} \cong \overline{GE}$ and $\overline{FH} \cong \overline{HE}$

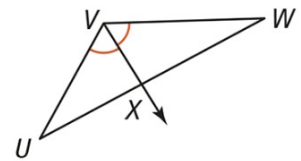


Then... $\overline{GH} \parallel \overline{DF}$ and $GH = \frac{1}{2}DF$

THEOREM 7-7

Triangle-Angle-Bisector Theorem

If... $\angle UVX \cong \angle WVX$



Then... $\frac{UX}{WX} = \frac{UV}{WV}$