

SM2 10.5 - Triangle Proportionality and Midsegments

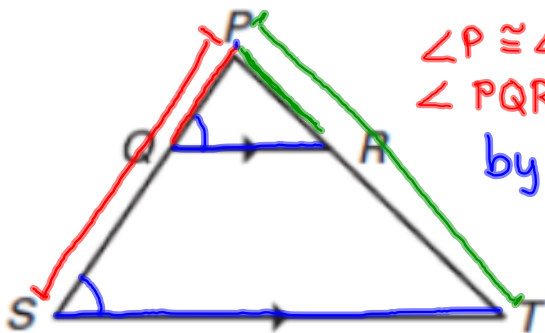
Complete the proportion using the figure to the right.

$$1. \frac{PQ}{QS} = \frac{PR}{?}$$

$$2. \frac{?}{TP} = \frac{SQ}{SP}$$

$$3. \frac{PQ}{PS} = \frac{?}{PT}$$

$$4. \frac{TR}{?} = \frac{SQ}{QP}$$



$\angle P \cong \angle P$
 $\angle PQR \cong \angle PST$ (alt interior angles)
 by AA~

$$\triangle PQR \sim \triangle PST$$

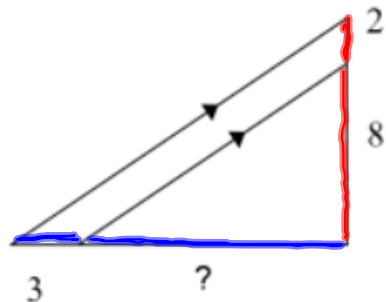
Side PQ corresponds to PS.

side QR corresponds to ST.

side PR corresponds to PT.

Find the missing length. Show your work!

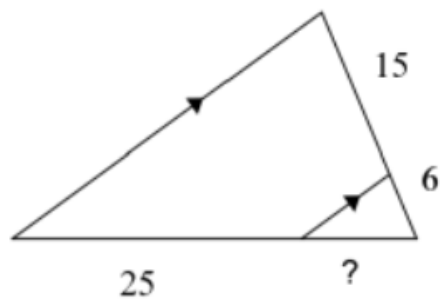
5.



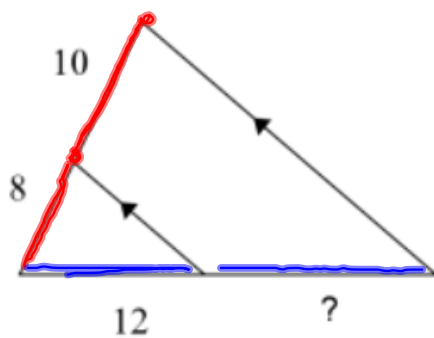
$$\frac{3}{?} = \frac{2}{8}$$

Solve for ?

6.

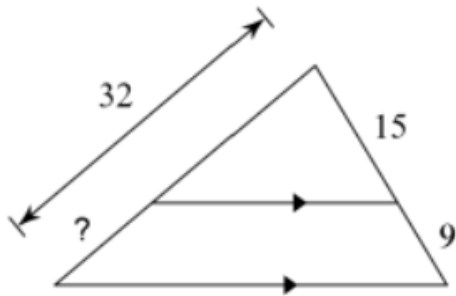


7.

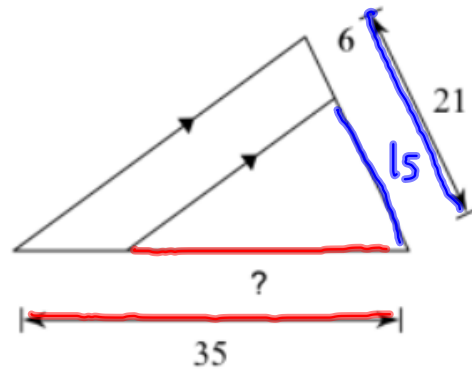


$$\frac{8}{10} = \frac{12}{?}$$

8.



9.



What part of triangle goes with ?

$$21 - 6 = 15$$

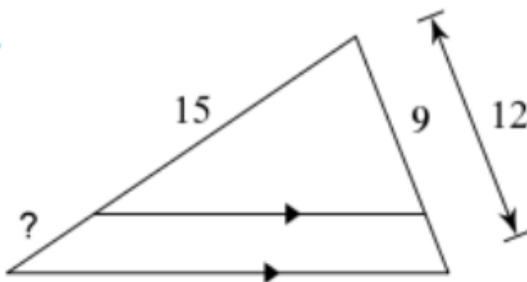
15 goes with ?

$$\frac{?}{35} = \frac{21 - 6}{21}$$

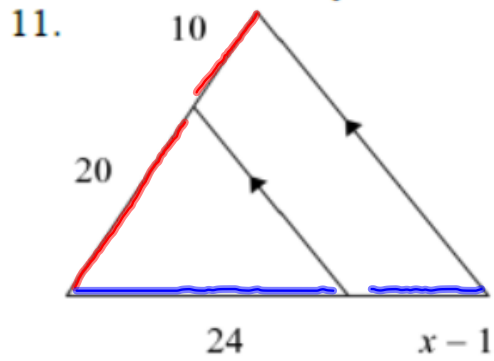
$$\frac{?}{35} = \frac{15}{21}$$

Solve for ?

10.

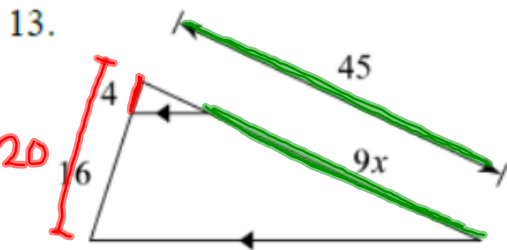
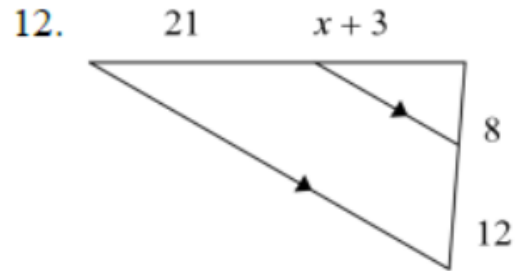


Solve for x . Show your work!



$$\frac{20}{24} = \frac{10}{x-1}$$

Solve for x

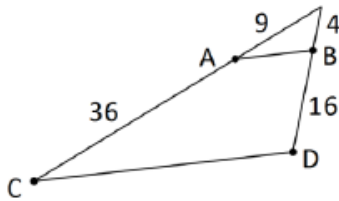


you need entire left side length.
 $4 + 16 = 20$

$$\frac{16}{20} = \frac{9x}{45} \quad \text{Solve for } x$$

Given each diagram, determine whether $\overline{AB} \parallel \overline{CD}$. Show work to support your answer!

14.



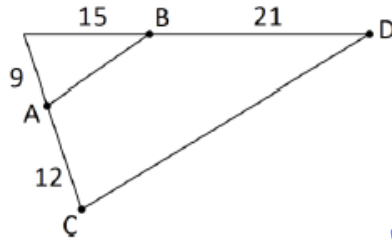
Does $\frac{9}{36} \stackrel{?}{=} \frac{4}{16}$?

if the cross products are = then $\overline{AB} \parallel \overline{CD}$.

Does $9(16) = 36(4)$?

If yes say parallel.

15.

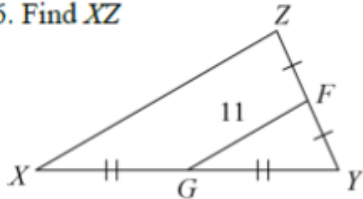


Does $\frac{9}{12} = \frac{15}{21}$?

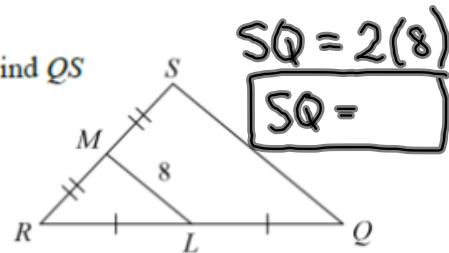
if yes write parallel.
if no write not parallel

Find the missing length indicated.

16. Find XZ

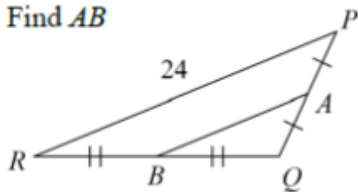


17. Find QS

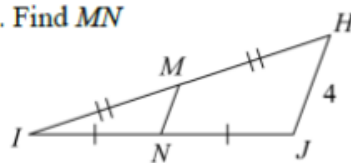


$SQ = 2(8)$
 $SQ =$

18. Find AB



19. Find MN



since MN is the midsegment of $\triangle IHJ$

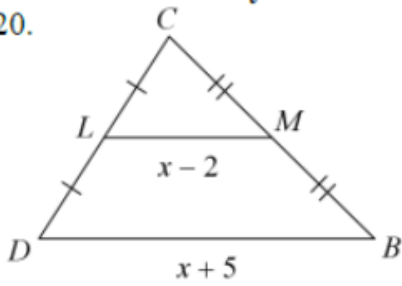
$MN = \frac{1}{2}(JH)$

$MN = \frac{1}{2}(4)$

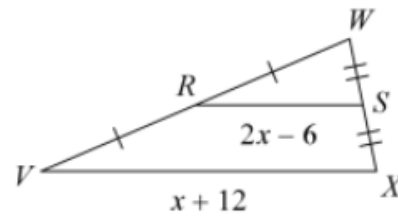
$MN =$

Solve for x . Show your work!

20.



21.



$$2(2x-6) = x+12$$

Solve for x .

The sides of $\triangle DEF$ are all midsegments of $\triangle ABC$. Find each of the requested lengths.

22. $BD = \underline{\hspace{2cm}}$ $DA = \underline{\hspace{2cm}}$ $EF = \underline{\hspace{2cm}}$

$CE = \underline{\hspace{2cm}}$ $EB = \underline{\hspace{2cm}}$ $FD = \underline{\hspace{2cm}}$

$CF = \underline{\hspace{2cm}}$ $FA = \underline{\hspace{2cm}}$ $DE = \underline{\hspace{2cm}}$

