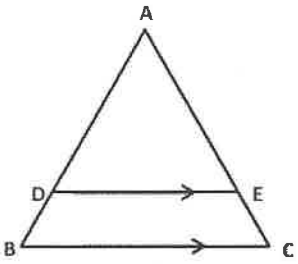
Name: Period:

Proportionality Theorems

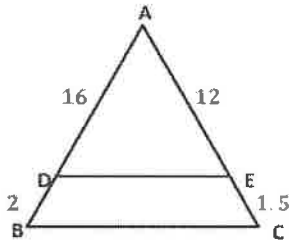


Triangle Proportionality Theorem: If a line parallel to one side of a triangle intersects the other two sides, then it divides the two sides proportionally.

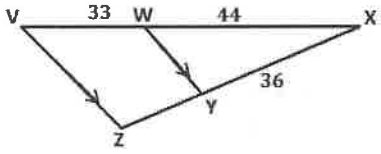
If $\overline{DE} \parallel \overline{BC}$, *then* _____

Converse of Triangle Proportionality Theorem: If a line divides two sides of a triangle proportionally, then it is _____ to the third side.

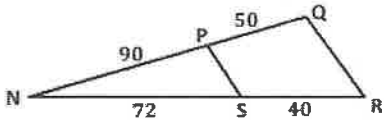
If $\frac{AD}{DB} = \frac{AE}{EC}$, *then* _____.



1. *Find the length of* $\overline{YZ}$.

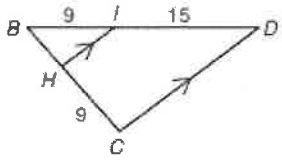


2. *Determine whether* $\overline{PS} \parallel \overline{QR}$.

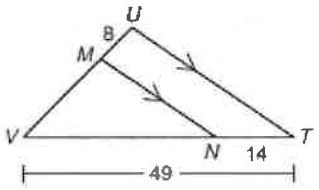


Exercises:

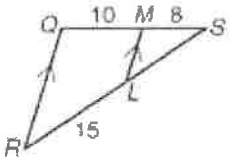
Find each length.



1. *BH* _____



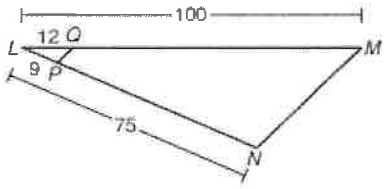
2. *MV* _____



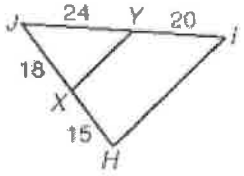
LS _____

Verify that the given segments are parallel.

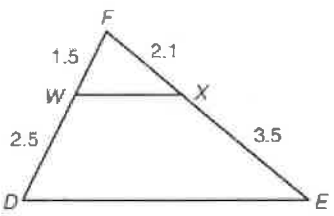
3. $\overline{PQ}$ and $\overline{NM}$



4. $\overline{WX}$ and $\overline{DE}$



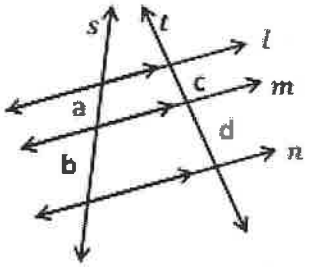
verify that $\overline{HI} \parallel \overline{XY}$.



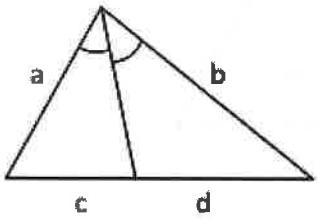
Name: Period:

More Proportionality Theorems:

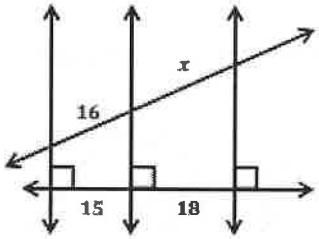
- If three parallel lines intersect two transversals, then they divide the transversals proportionally.



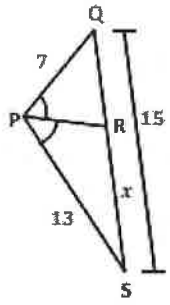
- If a ray bisects an angle of a triangle, then it divides the opposite side into segments whose lengths are proportional to the lengths of the other two sides.



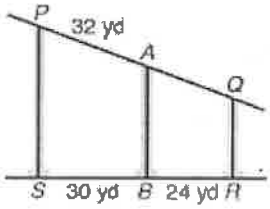
3. Find the value of x.



4. Find the length of RS.



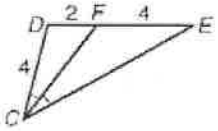
Use the figure for Exercise 9. The figure shows part of a freeway interchange. The raised freeway is supported by vertical, parallel pillars. Set up a ratio and solve to find the length.

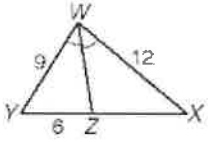


9. Use a calculator to find *AQ* to the nearest tenth of a yard.

_____

In Exercises 10 and 11, set up a ratio and substitute values from the figure to find each length.

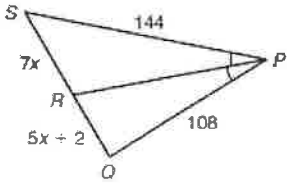




10. *CE* _____

11. *XZ* _____

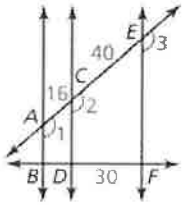
Find each length.



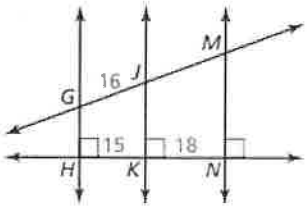
5. *SR* and *RQ* _____

Find the length of the given line segment.

3. $\overline{BD}$



4. $\overline{JM}$

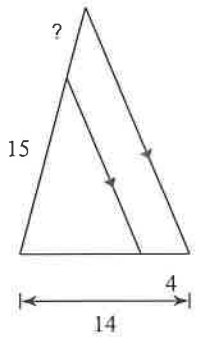


Kuta Software - Infinite Geometry Name_____

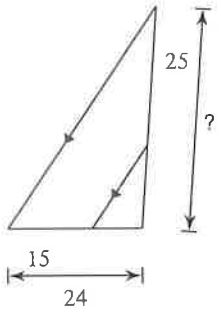
Proportional Parts in Triangles and Parallel Lines Date_____ Period____

Find the missing length indicated.

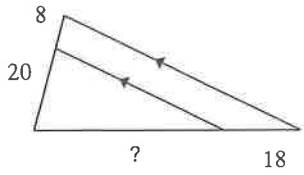
1)



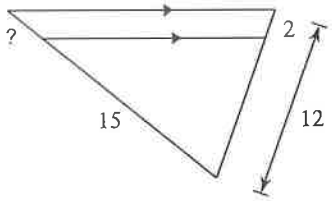
2)



3)

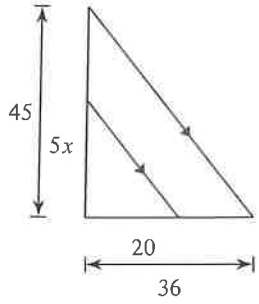


4)

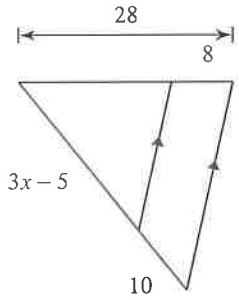


Solve for x.

5)

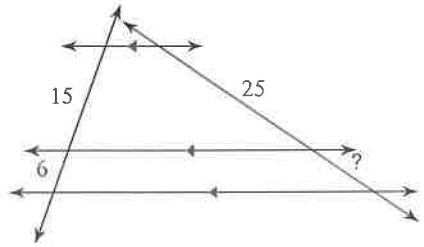


6)

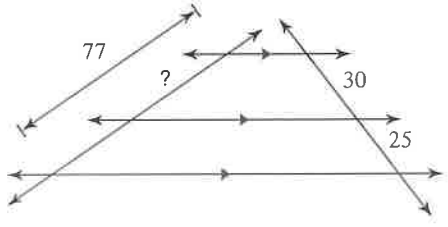


Find the missing length indicated.

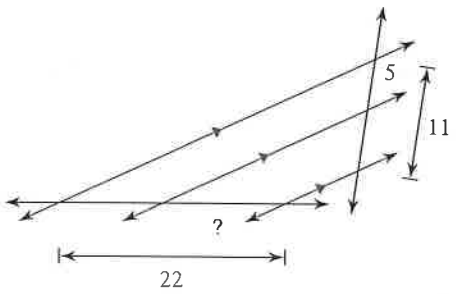
7)



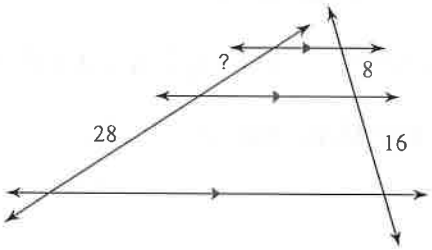
8)



9)

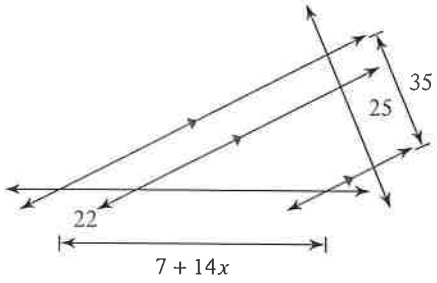


10)

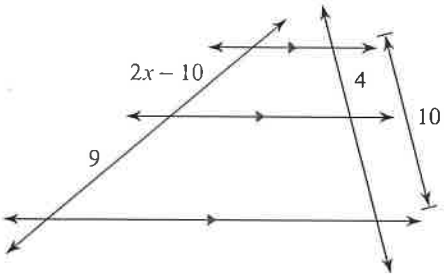


Solve for x.

11)

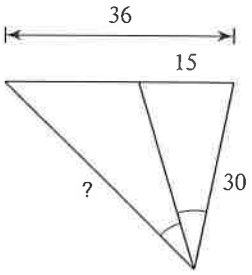


12)

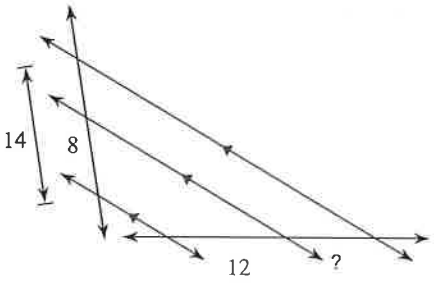


Find the missing length indicated.

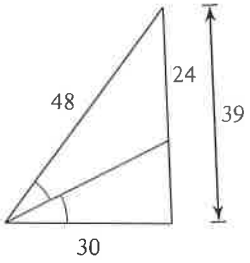
13)



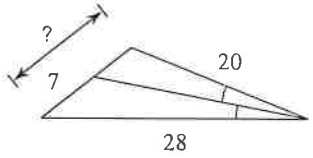
14)



15)

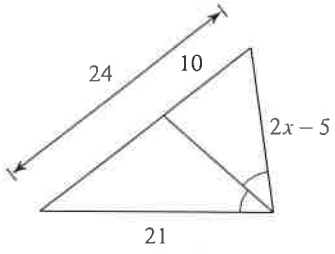


16)



Solve for x.

17)



18)