

Geometry

Chapter 7
Section 7-5

Side-Splitter Theorem

Take note

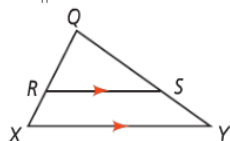
Theorem 7-4 Side-Splitter Theorem

Theorem

If a line is parallel to one side of a triangle and intersects the other two sides, then it divides those sides proportionally.

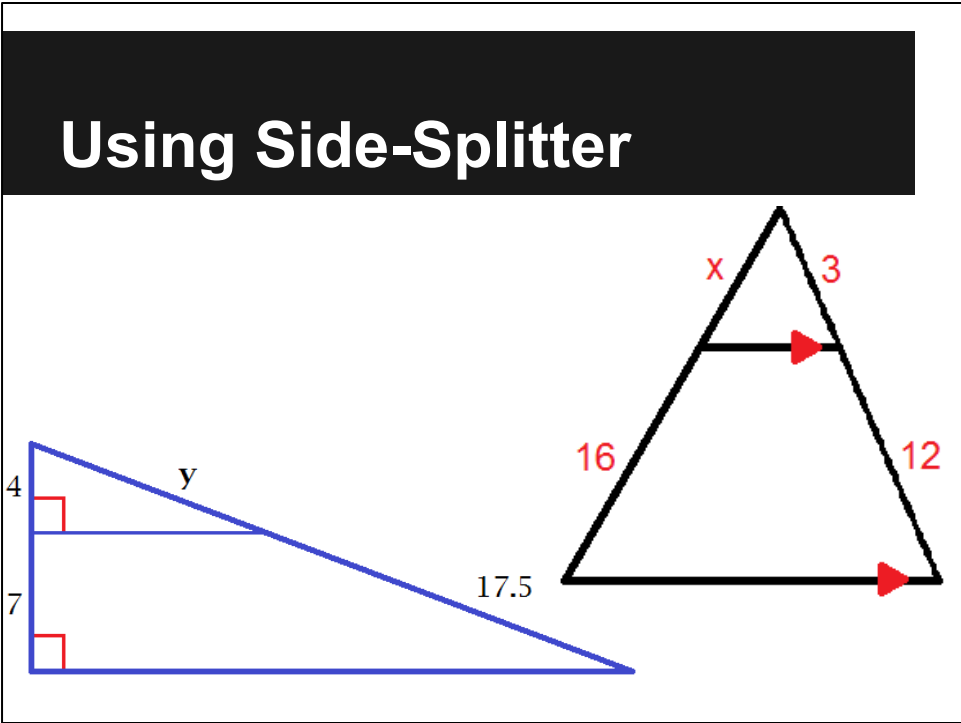
If ...

$$\overleftrightarrow{RS} \parallel \overleftrightarrow{XY}$$



Then ...

$$\frac{XR}{RQ} = \frac{YS}{SQ}$$



$y = 10$

$x = 4$

Parallel Lines Splitter Theorem

Take note

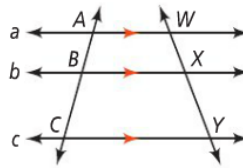
Corollary Corollary to the Side-Splitter Theorem

Corollary

If three parallel lines intersect two transversals, then the segments intercepted on the transversals are proportional.

If ...

$$a \parallel b \parallel c$$



Then ...

$$\frac{AB}{BC} = \frac{WX}{XY}$$

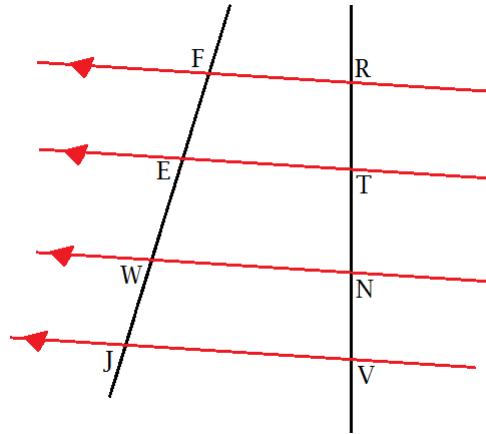
Using Parallel Lines Splitter

$$\frac{FE}{EW} = \frac{RT}{TN}$$

$$\frac{EW}{WJ} = \frac{TN}{NV}$$

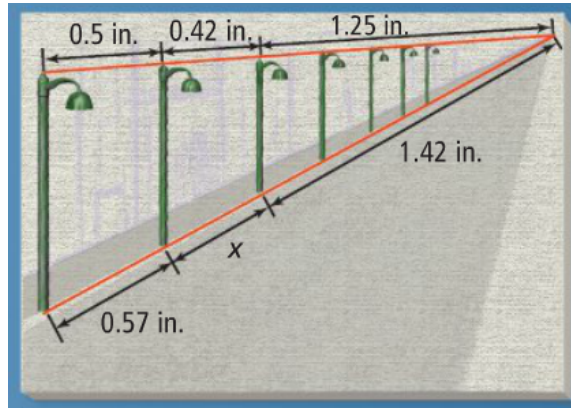
$$\frac{FE}{WJ} = \frac{RT}{NV}$$

$$\frac{WJ}{NV} = \frac{EW}{TN}$$



Perspective

An artist uses perspective to draw parallel lampposts along a city street, as shown in the diagram. What is the value of x ?



$x =$

Triangle-Angle-Bisector Theorem

take note

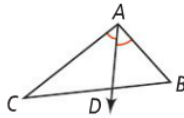
Theorem 7-5 Triangle-Angle-Bisector Theorem

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.

If ...

\overrightarrow{AD} bisects $\angle CAB$

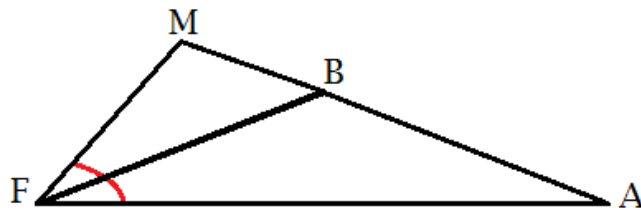


Then ...

$$\frac{CD}{DB} = \frac{CA}{BA}$$

Using Triangle-Angle-Bisector

$$\begin{aligned} FM &= 6 \\ MB &= 3.3 \\ AB &= X + 5 \\ FA &= 20 \end{aligned}$$



$$x = 6$$

Homework

Pages 475 - 476

9 - 20 all, 25 - 30 all