



Reteaching

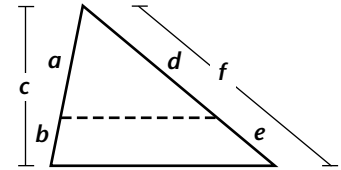
8.4 The Side-Splitting Theorem

◆ **Skill A** Using the Side-Splitting Theorem to solve problems

Recall The **Side-Splitting Theorem** states that a line parallel to one side of a triangle divides the other two sides proportionally.

In the figure below, the dashed segment is parallel to a side of the triangle. The Side-Splitting Theorem can be used to justify any proportion equivalent to the first proportion listed. Several examples are given.

$$\frac{a}{c} = \frac{d}{e} \quad \frac{a}{b} = \frac{c}{d} \quad \frac{a}{c} = \frac{b}{d} \quad \frac{b}{c} = \frac{d}{e}$$

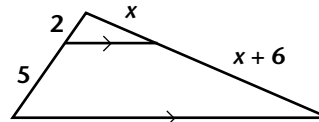


To use the Side-Splitting Theorem to find an unknown length x in a triangle, find a proportion in which x is isolated as the numerator or denominator of one of the ratios.

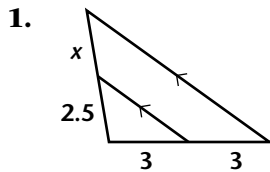
◆ **Example**
Find the value of x .

◆ **Solution**

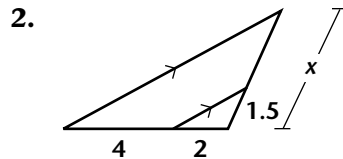
$$\begin{aligned} \frac{2}{5} &= \frac{x}{x+6} \\ 2x + 12 &= 5x \\ 3x &= 12 \\ x &= 4 \end{aligned}$$



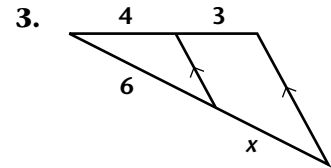
Find the value of x .



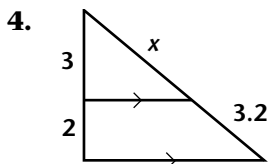
$x =$ _____



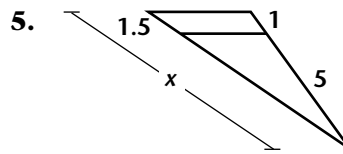
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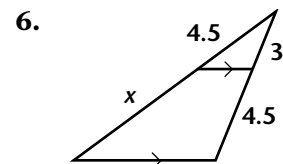
$x =$ _____



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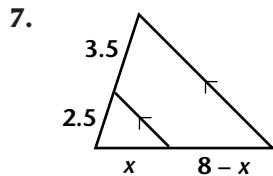


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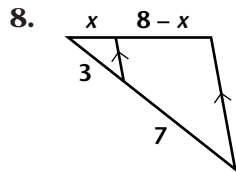


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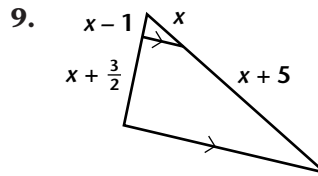
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$x =$ _____



$x =$ _____



$x =$ _____

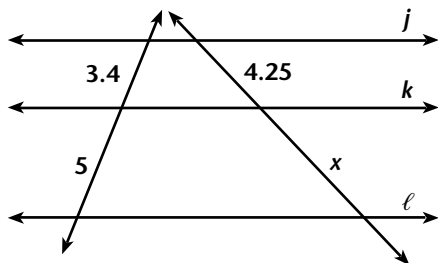
◆ Skill B Using the Two-Transversal Proportionality Corollary to solve problems

Recall A corollary of a theorem is a theorem that can be easily proven using the given theorem. The **Two-Transversal Proportionality Corollary** is a corollary of the Side-Splitting Theorem:

If three or more parallel lines intersect two transversals, they divide them proportionally.

◆ Example

In the figure, j , k , and ℓ are parallel. Find the value of x .



◆ Solution

Since $j \parallel k \parallel \ell$, the transversals are divided proportionally. That is, $\frac{3.4}{5} = \frac{4.25}{x}$.

Then $3.4x = 21.25$
 $x = 6.25$.

In the figure, lines m , n , p , and q are parallel. Use the Two-Transversal Proportionality Corollary and similar triangles to find each value.

- 10. $a =$ _____
- 11. $b =$ _____
- 12. $c =$ _____
- 13. $d =$ _____
- 14. $e =$ _____

