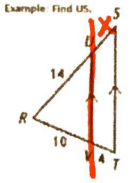
Theorem 7-4-1 Triangle Proportionality Theorem

THEOREM	HYPOTHESIS	CONCLUSION
If a line parallel to a side of a triangle intersects the other two sides, then it divides those sides proportionally		$\frac{AC}{CB} = \frac{AT}{TR}$

Example: Find US.



$\frac{14}{x} = \frac{10}{4}$

$10x = 4(14)$

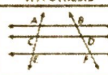
$10x = 56$

$x = 5.6$

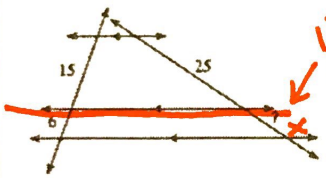
$US = 5.6$

like a "fraction bar" so think "fraction"

Corollary 7-4-2 Two-Transversal Proportionality

THEOREM	HYPOTHESIS	CONCLUSION
If three or more parallel lines intersect two transversals, then they divide the transversals proportionally		$\frac{AC}{CE} = \frac{BD}{DF}$

Example: Solve for the missing side.



like a fraction bar

$\frac{15}{6} = \frac{25}{x}$

$15x = 6(25)$

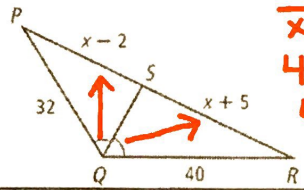
$15x = 150$

$x = 10$

Theorem 7-4-3 Triangle Angle Bisector Theorem

THEOREM	HYPOTHESIS	CONCLUSION
An angle bisector of a triangle divides the opposite side into two segments whose lengths are proportional to the lengths of the other two sides (∠ Bisector Thm.)		$\frac{BD}{DC} = \frac{AB}{AC}$

Example: Solve for PS.



$\frac{x-2}{x+5} = \frac{32}{40}$

$40(x-2) = 32(x+5)$

$40x - 80 = 32x + 160$

$8x = 240$

$x = 30$

* don't forget to answer the question... you are asked to find PS

$PS = x - 2$

$= 30 - 2$

$= 28$