5.

$\frac{54w}{54} = \frac{16}{54}$

$w = .3$

6. $\frac{16m}{n} = \frac{6n}{n}$ $\frac{m}{n}$

$\frac{16\frac{m}{n}}{16} = \frac{6}{16}$

$\frac{m}{n} = \frac{3}{8}$

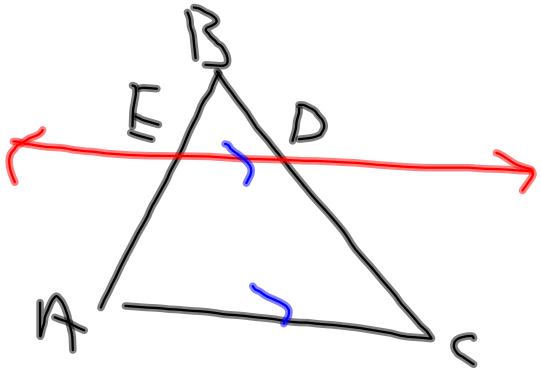
7. $220ft \cdot \frac{1}{400} = .55 \times 12 = 6.6in.$

$160ft. \frac{1}{400} = .4 \times 12 = 4.8in$

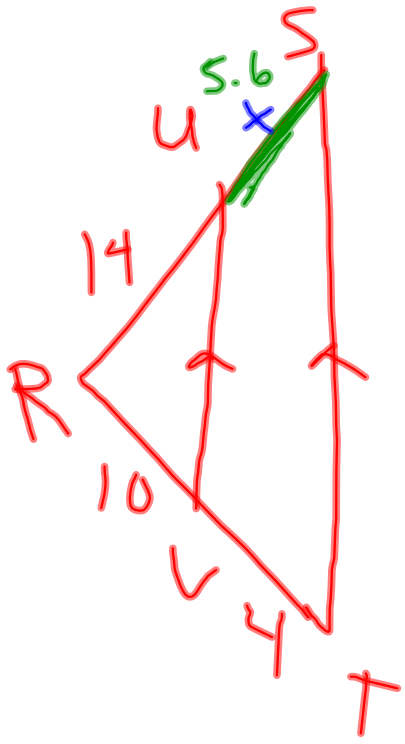
7.4 Properties of ~ △'s

△ proportionality thm:

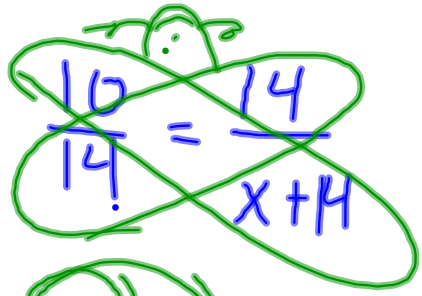
if a line ∥ to a side of a △ intersects the other 2 sides, then it divides those 2 sides proportionally.



$$\frac{BE}{AB} = \frac{BD}{CB}$$



Find US



$10(x+14) = 196$

$10x + 140 = 196$

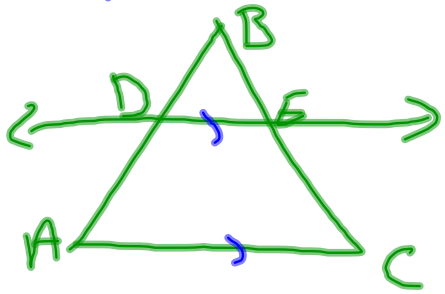
$-140 \quad -140$

$\frac{10x}{10} = \frac{56}{10}$

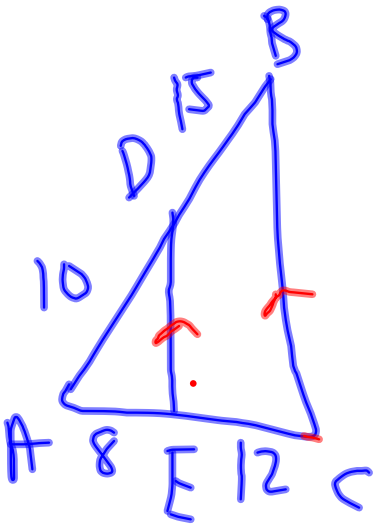
$x = 5.6$

Converse of △ prop. thm

if a line divides 2 sides of a △ proportionally, then it's ∥ to the 3rd side.



If $\frac{BD}{BA} = \frac{BE}{BC}$, then $\overline{DE} \parallel \overline{AC}$.



is $\overline{DE} \parallel \overline{BC}$?

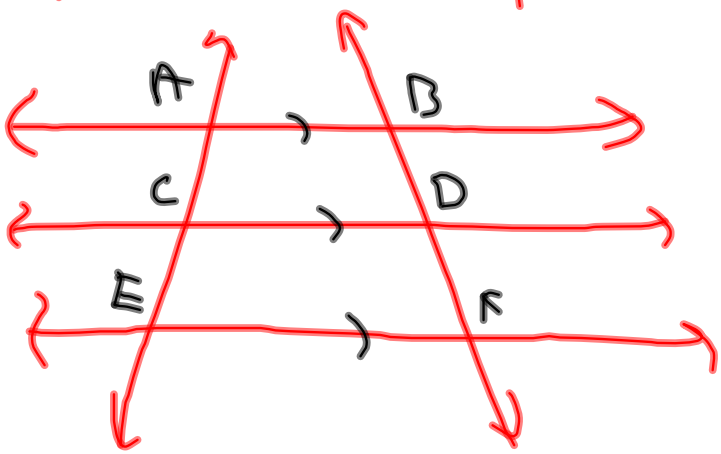
$\frac{8}{20} = \frac{10}{25}$

$\frac{2}{5} = \frac{2}{5}$

Yes, since sides are proportionate, so by $\overline{DE} \parallel \overline{BC}$ by converse of Δ prop. thm.

Two Transversal Proportionality thm

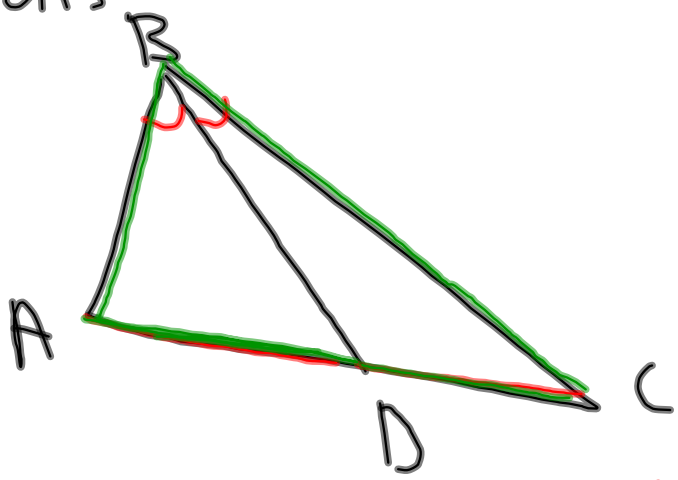
if 3 or more // lines intersect 2 transversals, then it divides the transversals proportionally.



$$\frac{AC}{CE} = \frac{BD}{DF} \qquad \frac{AC}{AE} = \frac{BD}{BF}$$

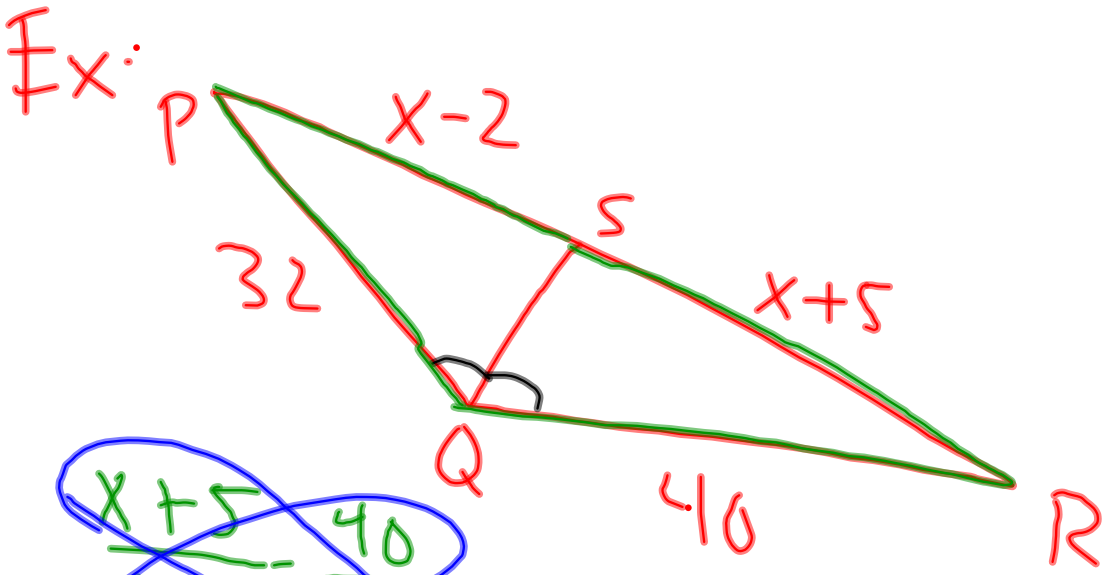
△ ∠ bisector thm

an ∠ bisector of a △ divides the opp. sides into 2 segments whose lengths are proportional to the lengths of the other 2 sides



$$\frac{AD}{DC} = \frac{AB}{BC}$$

Ex:



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

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

$$32x + 160 = 40x - 80$$

$$-32x \qquad -32x$$

$$160 = 8x - 80$$

$$+80 \qquad +80$$

$$\frac{240}{8} = \frac{8x}{8}$$

$$x = 30$$

p. 484 1-20