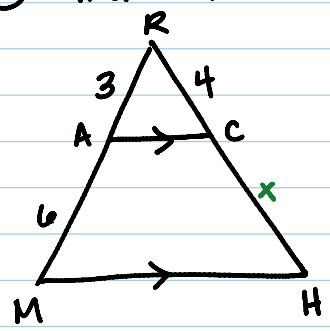
Warm Up Key

Find the length of each segment. Be able to defend your set-up.

① Find CH.



opt 1: ll lines ÷ transversals proportionally

* call CH → "x" *

$\frac{3}{6} = \frac{4}{x}$ or $\frac{3}{4} = \frac{6}{x}$

$3x = 24$ $3x = 24$

$x = 8$ $x = 8$

$\therefore \boxed{CH = 8}$

opt 2: use ~Δ's ...

If ll lines, then corr ∠'s are ≅.

So ∠RAC ≅ ∠M and ∠RCA ≅ ∠H.

Therefore ΔRAC ~ ΔRMH. Since Δ's are ~, the sides are proportional.

* call RH → "x" *

$\frac{3}{9} = \frac{4}{x}$

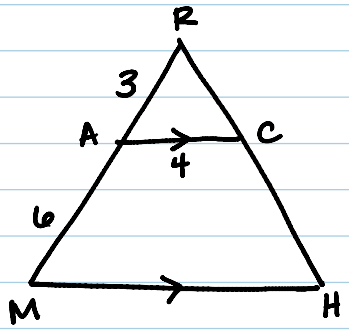
$3x = 36$

$x = 12$

If RH = 12, then CH = 12 − 4

$\boxed{CH = 8}$

② Find MH.



* only 1 option... ~Δ's.

If ll lines, then corr ∠'s ≅.

So ∠RAC ≅ ∠M and ∠RCA ≅ ∠H.

Therefore ΔRAC ~ ΔRMH. Since Δ's are ~, the sides are proportional

* call MH → "x" *

$\frac{3}{9} = \frac{4}{x}$

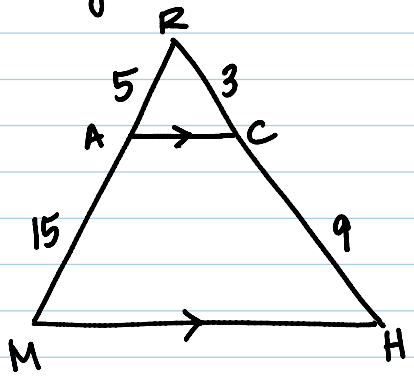
$3x = 36$

$x = 12$

So MH = 12.

* cannot use ll lines because ll lines do not ÷ ll lines proportionally... they ÷ the transversals proportionally...

③ Verify that the lines are parallel.



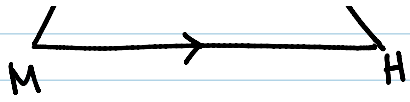
opt 1:

$\frac{5}{3} \stackrel{?}{=} \frac{15}{9}$

$\frac{5}{3} = \frac{5}{3}$ ✓

$\overline{AC} \parallel \overline{MH}$ because they divide the transversals $\overline{RM}$ and $\overline{RH}$ proportionally.

opt 2:



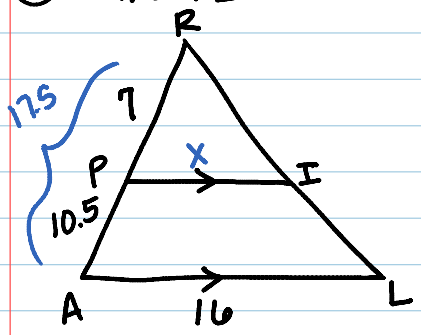
opt 2:

- $\frac{5}{20} \stackrel{?}{=} \frac{3}{12}$
- $\frac{1}{4} = \frac{1}{4}$ ✓
- $\angle R \cong \angle R$ by Reflexive Prop

$\triangle RAC \sim \triangle RMH$ by SAS~ because 2 pairs of corresponding sides are proportional and the included $\angle$'s are $\cong$. Since $\triangle$'s are $\sim$, $\angle RAC \cong \angle M$. These corresponding $\angle$'s are $\cong$, which means $\overline{AC} \parallel \overline{MH}$.

Magnet Problems:

① Find PI.



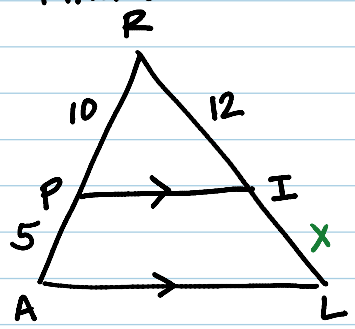
$\frac{7}{17.5} = \frac{x}{16}$

$17.5x = 112$

$x = 6.4$

$\boxed{PI = 6.4}$

② Find IL.



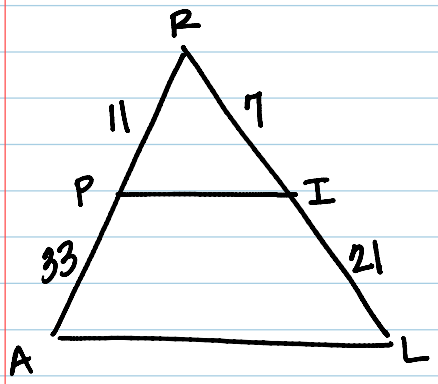
$\frac{10}{12} = \frac{5}{x}$

$10x = 60$

$x = 6$

$\boxed{IL = 6}$

③ Determine if the lines are parallel. Justify your answer with work and in words.



Opt 1: $\frac{11}{7} \stackrel{?}{=} \frac{33}{21}$

$\frac{11}{7} = \frac{11}{7}$

$\overline{PI} \parallel \overline{AL}$ because they divide transversals $\overline{RA}$ and $\overline{RL}$ proportionally

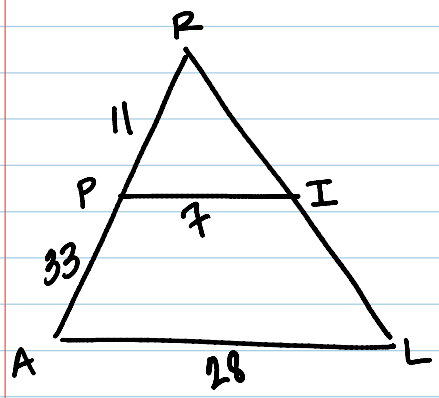
Opt 2: $\frac{11}{44} \stackrel{?}{=} \frac{7}{28}$

$\frac{1}{4} = \frac{1}{4}$ ✓

$\angle R \cong \angle R$ by Reflexive

Explain ~Δ process... (see #3 above)

④ Determine if the lines are parallel. Justify your answer with work and in words.



can only use ~Δ explanation for this problem