Geometry

Ch. 7 Handout 7.2

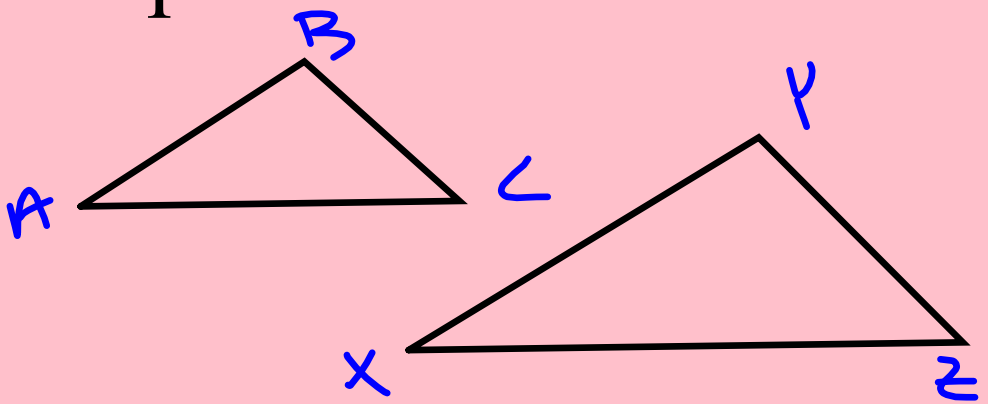
Similar Polygons

Two polygons are **similar** if their vertices can be paired so that:

1. Corresponding angles are congruent Pull

2. Corresponding sides are in proportion Pull

1. $\Delta ABC \sim \Delta XYZ$. Complete each statement.



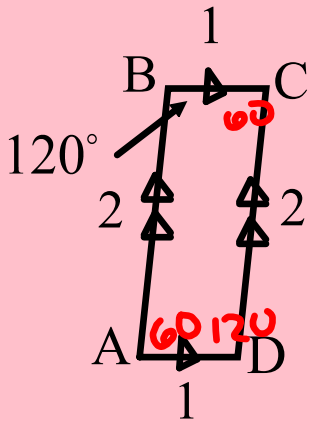
a) $m\angle B =$ m∠Y

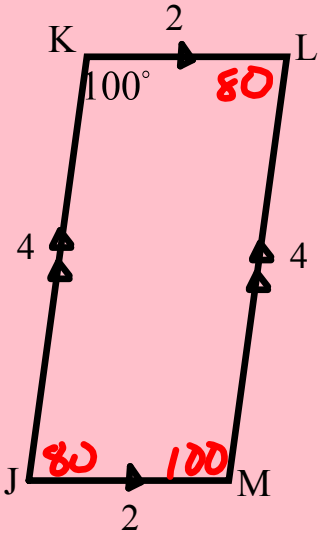
b) $\frac{BC}{YZ} = \frac{AC}{XZ}$

c) $m\angle A =$ m∠X

d) $\frac{BC}{YZ} = \frac{AB}{XY}$

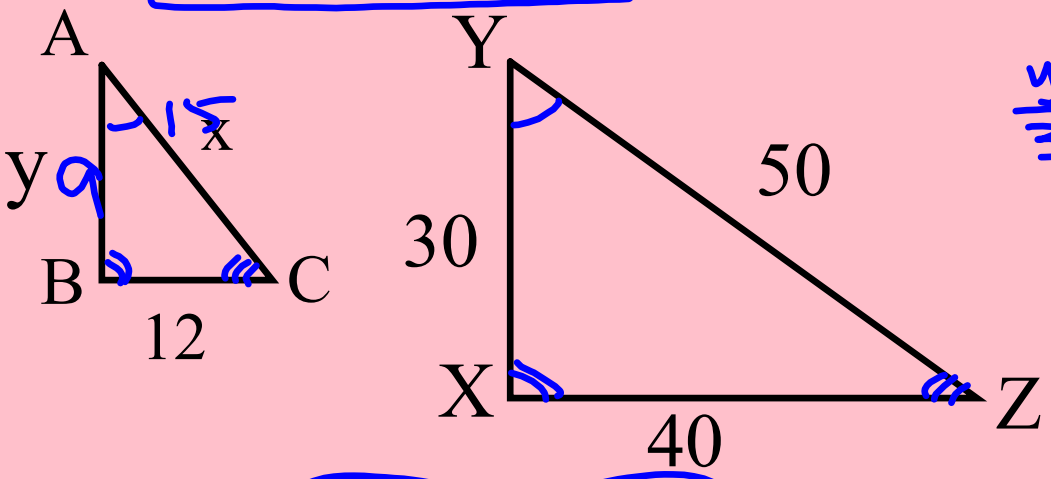
2. Determine whether the parallelograms are similar. Explain.





Not ~
because corresponding ∠'s are not ≅

3. If $\Delta ABC \sim \Delta YXZ$, find the value of x and AB.



$\frac{y}{30} = \frac{x}{50} = \frac{12}{40}$ (4)

$\frac{x}{50} = \frac{12}{40}$

$\frac{40x}{40} = \frac{600}{40}$

$\frac{y}{30} = \frac{12}{40}$

$40y = 360$

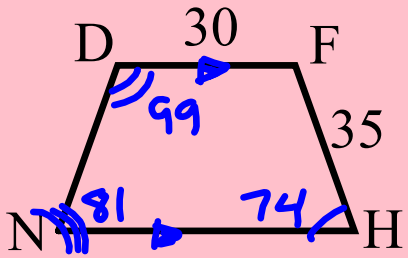
$x = 15$

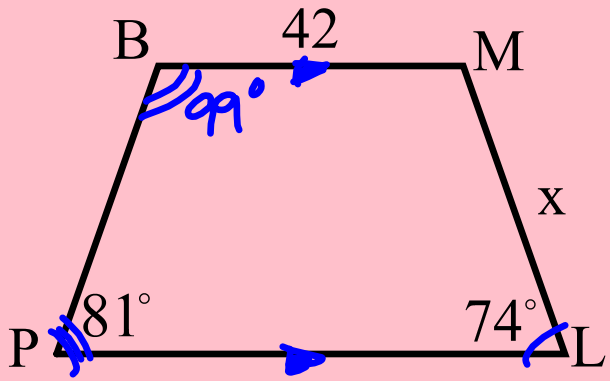
$y = 9$

4. trapezoid DFHN ~ trapezoid BMLP.

Complete each statement.

180 − 81 = 99





a) $m\angle H = 74°$

c) $m\angle D = 99°$

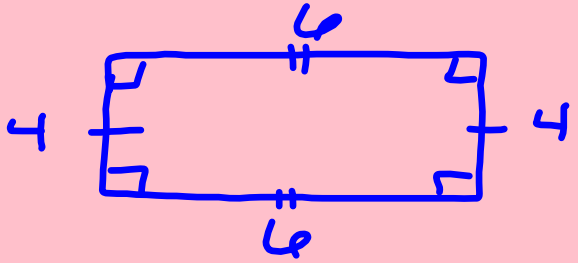
b) $x = 49$

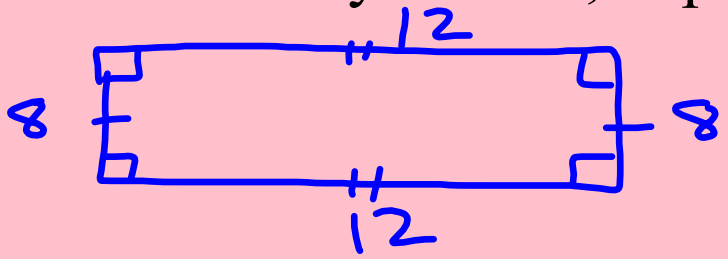
$\frac{30}{42} = \frac{35}{x}$

$30x = 1470$

$x = 49$

5. A rectangle with perimeter 20 cm has a side 4 cm long.
A rectangle with perimeter 40 cm has a side 8 cm long.
Determine whether the rectangles are similar.
If they are, give the similarity ratio. If they are not, explain.





$P = 20$

$\frac{4}{8} = \frac{6}{12} = \frac{4}{8} = \frac{6}{12}$

$\frac{1}{2} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2}$

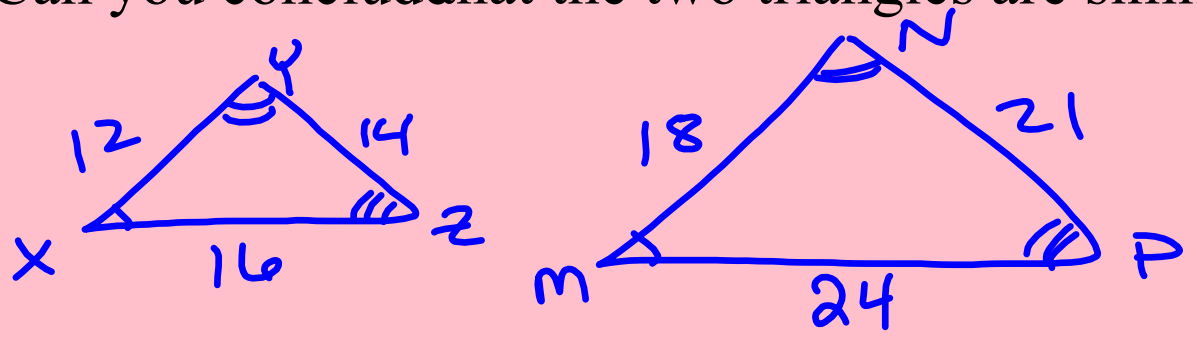
~ ratio = $\frac{1}{2}$

Yes, Rectangles are similar because
1) corresponding $\angle$s $\cong$
2) corresponding sides are proportional

6. Sketch ΔXYZ and ΔMNP with $\angle X \cong \angle M$, $\angle Y \cong \angle N$, and $\angle Z \cong \angle P$.

Also, XY = 12, YZ = 14, ZX = 16, MN = 18, NP = 21, and PM =24.

Can you conclude that the two triangles are similar?

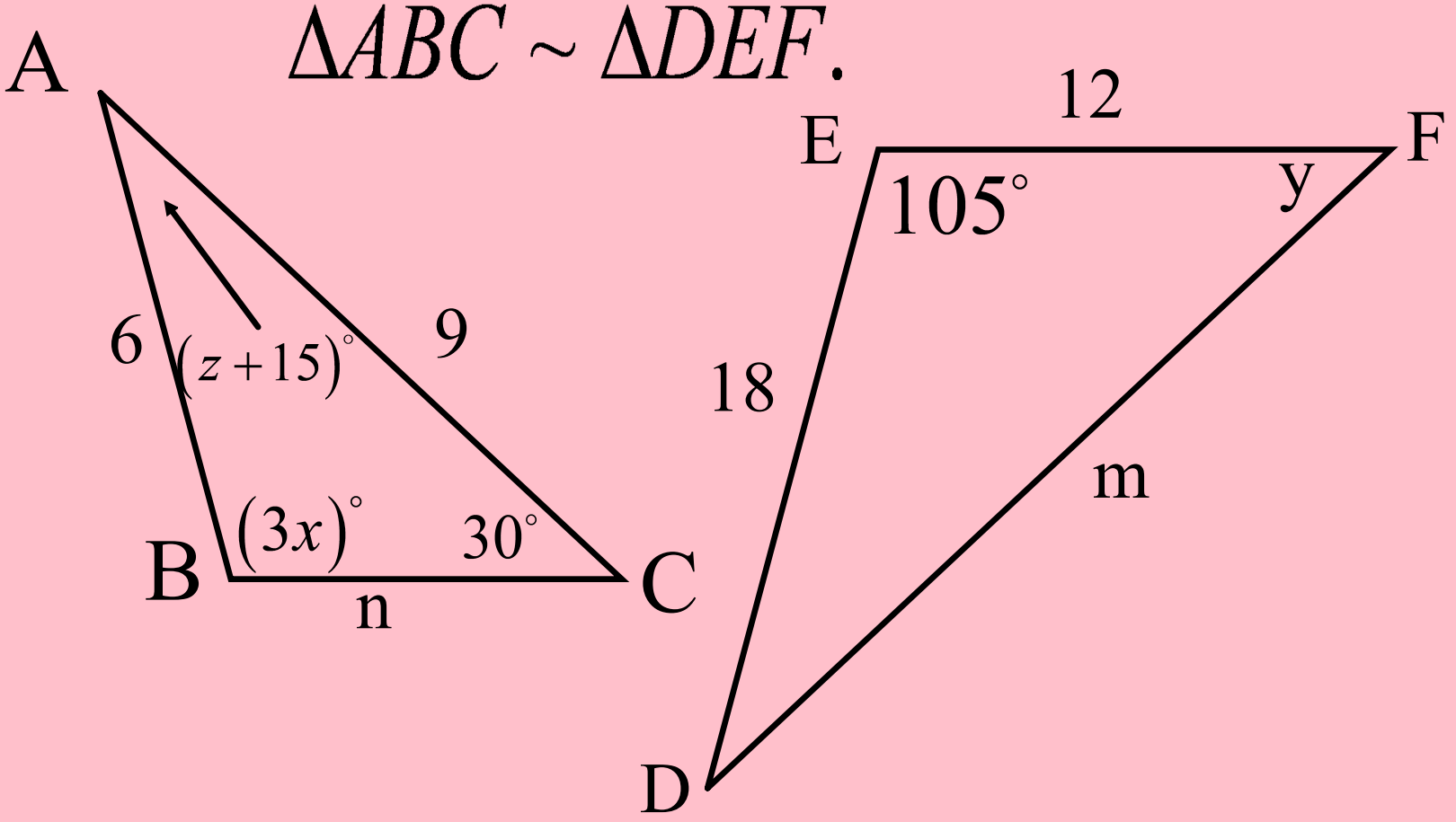


$\frac{12}{18} = \frac{14}{21} = \frac{16}{24}$

$\frac{2}{3} = \frac{2}{3} = \frac{2}{3}$

$\Delta XYZ \sim \Delta MNP$

$\Delta ABC \sim \Delta DEF.$



Find the missing variables.

Assignment:

Pgs 375-379 1-16, 21-30