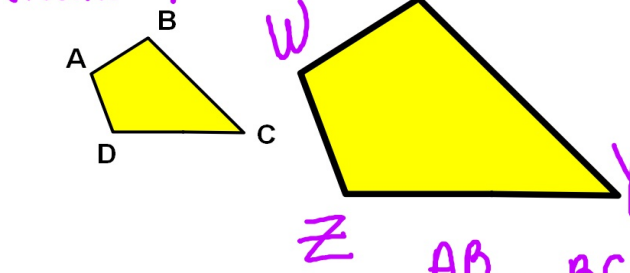
7- 3 Similar Polygons

Jan 5

Std. 5.0

Definition of Similar Polygons: Two polygons are *similar* if corresponding angles are congruent and corresponding sides are in proportion.

(ratios =)



$\angle A \cong \angle W$

$\angle B \cong \angle X$

$\angle C \cong \angle Y$

$\angle D \cong \angle Z$

quad ABCD ~ quad WXYZ (is similar to)

$\frac{AB}{WX} = \frac{BC}{XY} = \frac{CD}{YZ} = \frac{DA}{ZW}$

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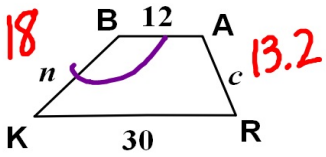
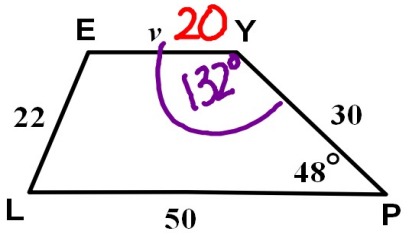
example trapezoid BARK ~ trapezoid YELP



a) $m\angle B = 132$

b) scale factor = $\frac{RK}{LP} = \frac{30}{50} = \frac{3}{5}$

c) find *n, c, and v*



$\frac{n}{30} = \frac{3}{5}$ $n = 18$

$\frac{c}{22} = \frac{3}{5}$ $5c = 66$ $c = 13.2$ or $13\frac{1}{5}$

$\frac{12}{v} = \frac{3}{5}$ $v = 20$

d) find the ratio of the perimeters

$\frac{BARK}{YELP} = \frac{73.2}{122} = \frac{36.6}{61.0} = \frac{366}{610} = \frac{183}{305} = \frac{3.61}{5.01}$

**ratio of perimeters = scale factor