Lesson 2: Properties of Dilations

Classwork

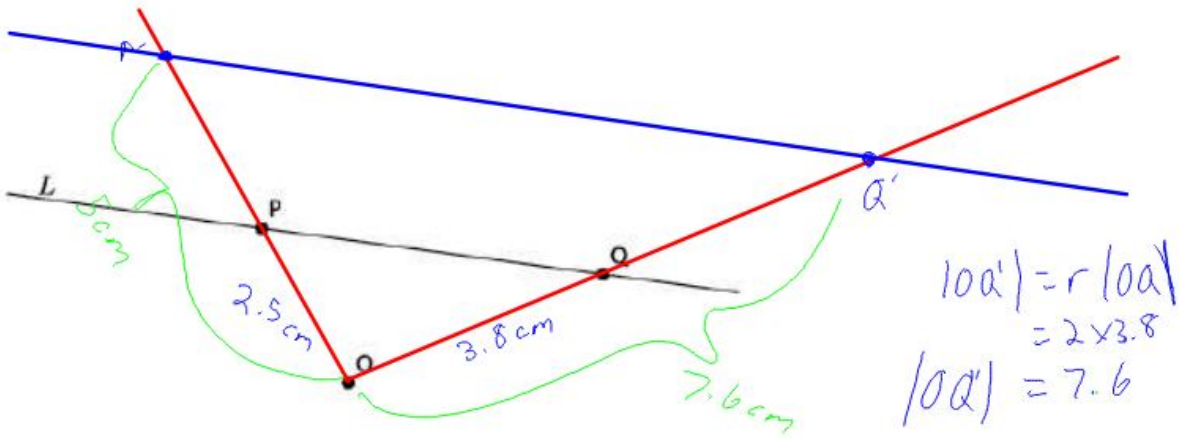
Examples 1–2: Dilations Map Lines to Lines

$r = 2$

$|OP'| = r|OP|$

$= 2 \times 2.5$

$|OP'| = 5\text{ cm}$

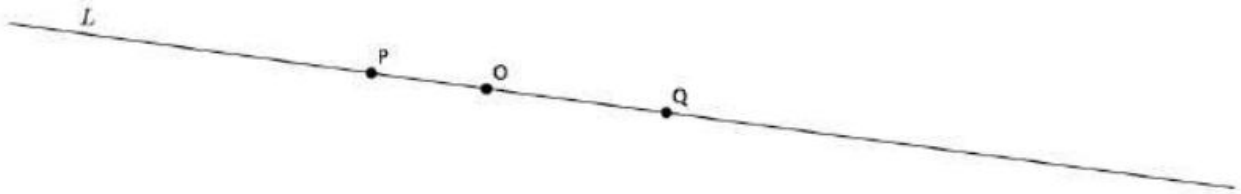


$|OQ'| = r|OQ|$

$= 2 \times 3.8$

$|OQ'| = 7.6$

Example 3: Dilations Map Lines to Lines



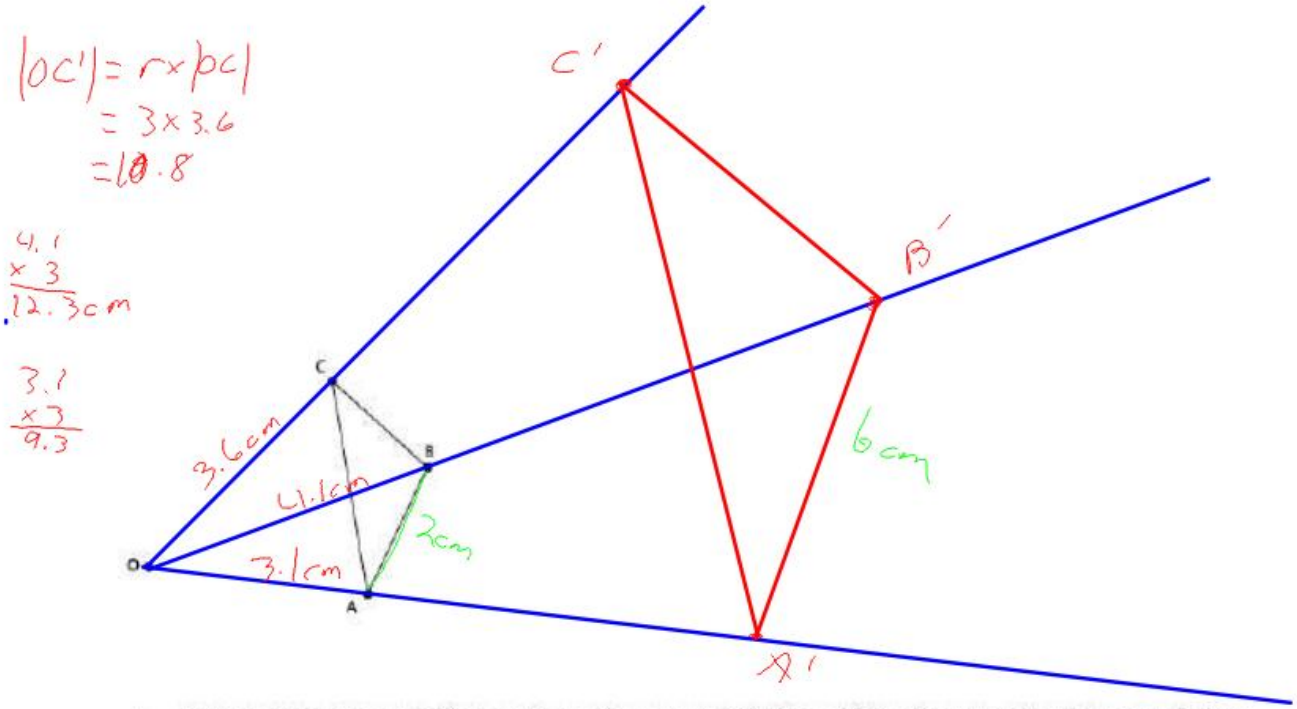
Exercise

Given center O and triangle ABC, dilate the triangle from center O with a scale factor $r = 3$.

$|OC'| = r \times |OC|$
$= 3 \times 3.6$
$= 10.8$

4.1
× 3
12.3cm

3.1
× 3
9.3



a. Note that the triangle ABC is made up of segments AB, BC, and CA. Were the dilated images of these segments still segments?

yes

b. Measure the length of the segments AB and $A'B'$. What do you notice? (Think about the definition of dilation.)

$|AB| = 2$

$|A'B'| = 6$

$|A'B'| = 3 \times |AB|$

c. Verify the claim you made in part (b) by measuring and comparing the lengths of segments BC and $B'C'$ and segments CA and $C'A'$. What does this mean in terms of the segments formed between dilated points?

d. Measure $\angle ABC$ and $\angle A'B'C'$. What do you notice?

e. Verify the claim you made in part (d) by measuring and comparing $\angle BCA$ and $\angle B'C'A'$ and $\angle CAB$ and $\angle C'A'B'$. What does that mean in terms of dilations with respect to angles and their degrees?