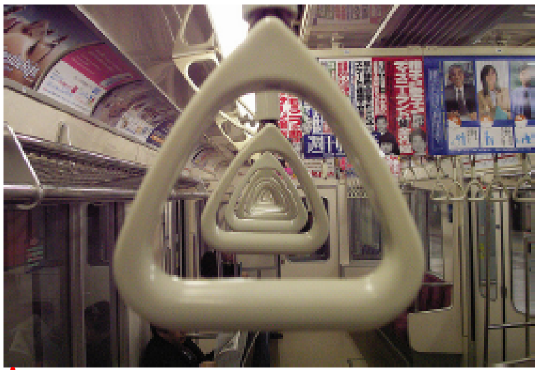
Questions on 6.1 HW?

6.2 Triangle Dilations

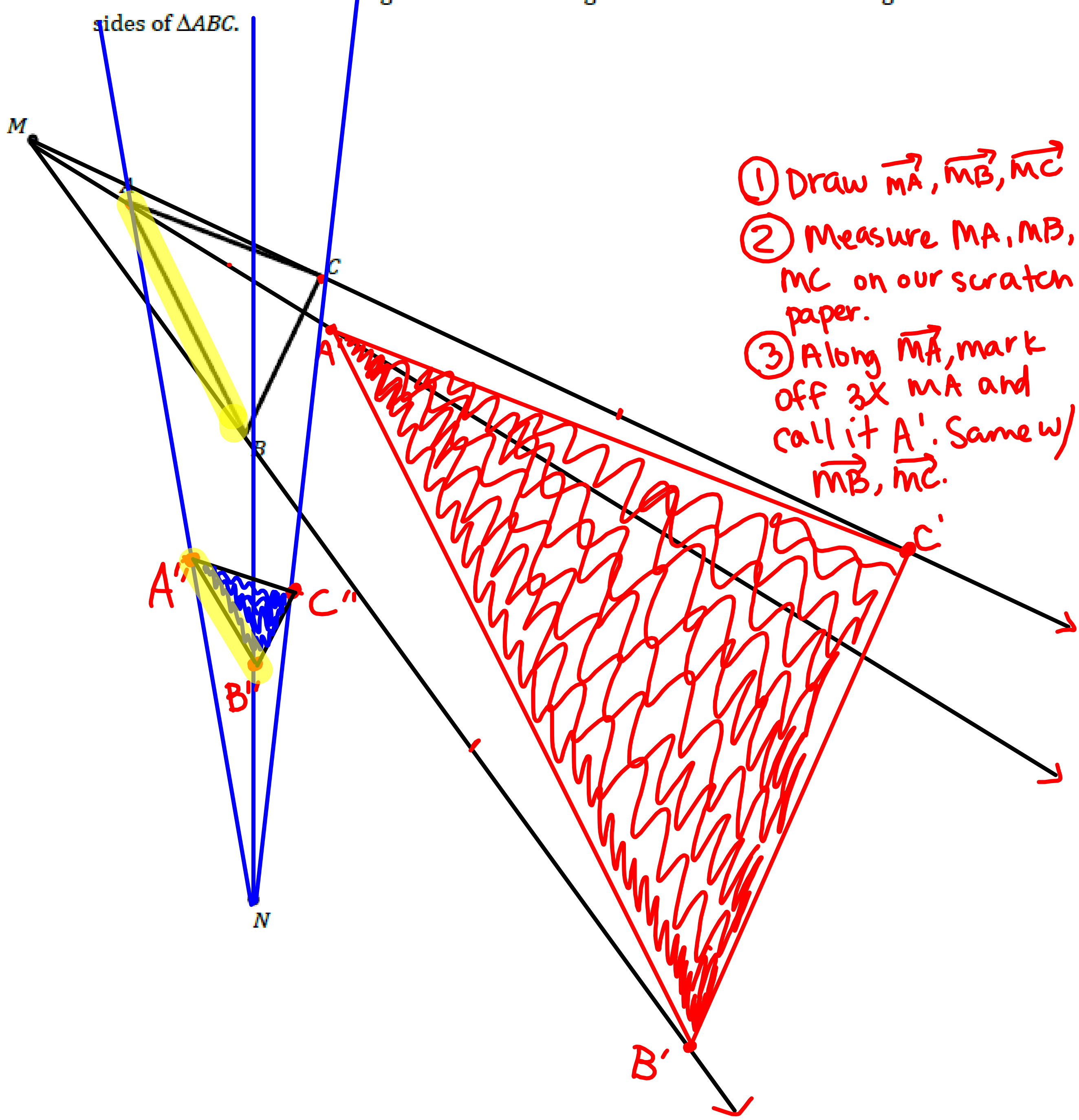
A Solidify Understanding Task



1. Given ΔABC, use point M as the center of a dilation to locate the vertices of a triangle that has side lengths that are three times longer than the sides of ΔABC.

A'C' is 3X AC, B'C' is 3X as BC, A'C' is 3X AC

2. Now use point N as the center of a dilation to locate the vertices of a triangle that has side lengths that are one-half the length of the sides of ΔABC.



① Draw $\overrightarrow{MA}$, $\overrightarrow{MB}$, $\overrightarrow{MC}$

② Measure MA, MB, MC on our scratch paper.

③ Along $\overrightarrow{MA}$, mark off 3X MA and call it A'. Same w/ $\overrightarrow{MB}$, $\overrightarrow{MC}$.

3. Label the vertices in the two triangles you created in the diagram above. Based on this diagram, write several proportionality statements you believe are true. First write your proportionality statements using the names of the sides of the triangles in your ratios. Then verify that the proportions are true by replacing the side names with their measurements, measured to the nearest millimeter.

$\triangle ABC \sim \triangle A'B'C' \sim \triangle A''B''C''$

My list of proportions: (try to find at least 10 proportionality statements you believe are true)

BTW...
$\angle A \cong \angle A' \cong \angle A''$
$\angle B \cong \angle B' \cong \angle B''$
$\angle C \cong \angle C' \cong \angle C''$

$\frac{4}{12} \downarrow \frac{1}{3}$

$$\frac{AB}{A'B'} = \frac{BC}{B'C'} = \frac{AC}{A'C'}$$

$$\frac{AB}{A''B''} = \frac{BC}{B''C''} = \frac{AC}{A''C''}$$

$$\frac{A'B'}{A''B''} = \frac{B'C'}{B''C''} = \frac{A'C'}{A''C''}$$

$$\frac{AB}{A'B'} = \frac{AC}{A'C'}$$

same $\triangle$ $\triangle ABC$

same $\triangle$, $\triangle A'B'C'$

corresponding side lengths

$$\cancel{\frac{AB}{A'C'} = \frac{AC}{A'B'}}$$

NO!!!

$$\frac{AB}{AC} = \frac{A'B'}{A'C'}$$

corresponding side lengths

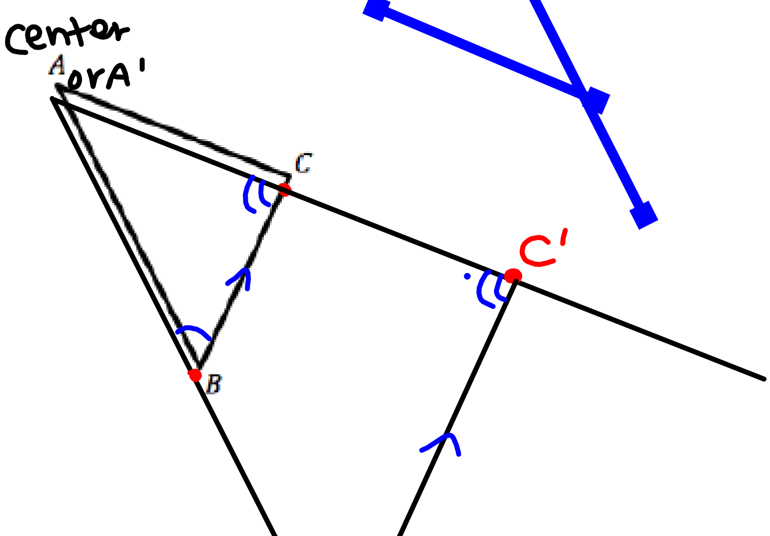
same $\triangle$

4. Based on your work above, under what conditions are the corresponding line segments in an image and its pre-image parallel after a dilation? That is, which word best completes this statement?

After a dilation, corresponding line segments in an image and its pre-image are [never, sometimes, always] parallel.

5. Give reasons for your answer. If you choose "sometimes", be very clear in your explanation how to tell when the corresponding line segments before and after the dilation are parallel and when they are not.

Given ΔABC, use point A as the center of a dilation to locate the vertices of a triangle that has side lengths that ~~are twice as long as the sides of ΔABC~~.



$\overline{BC} \parallel \overline{B'C'}$

6. Explain how the diagram you created above can be used to prove the following theorem:

The segment joining midpoints of two sides of a triangle is parallel to the third side and half the length.

B'

$\angle B$ & $\angle B'$ are corresponding angles that are $\cong$ with these two lines $\overleftrightarrow{BC}$ and $\overleftrightarrow{B'C'}$ that are cut by transversal $\overleftrightarrow{BB'}$, so $\overleftrightarrow{BC}$ and $\overleftrightarrow{B'C'}$ HAVE to be parallel.

And $\overline{BC}$ is ½ the length of $\overline{B'C'}$ when we measure it.

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Home Tools SM2 - Unit 6 Outli...

B: ~~2/17/2017~~ 2/22 A: 2/21/2017	6.2 Triangle Dilations	6.2 Ready, Set, Go (pgs.12-15) Complete: ____________
B: ~~2/22/2017~~ 2/24 A: 2/23/2017	6.3 Similar Triangles and Other Figures	6.3 Ready, Set, Go (pgs.20-21) Complete: ____________
B: ~~2/24/2017~~ 2/28 A: 2/27/2017	6.4 Cut by a Transversal	6.4 Ready, Set, Go (pgs.24-26) Complete: ____________
B: ~~2/28/2017~~ 3/1 A: 3/2/2017	6.5 Measured Reasoning	6.5 Ready, Set, Go (pgs.29-31) Complete: ____________
~~B: 3/1/2017~~	~~**6.1-6.5 Review Day** ***B day only***~~	~~**6.1-6.5 Review WKS** **Complete:** ____________~~
B: 3/6/2017 A: 3/7/2017	6.6 Yard Work in Segments	6.6 Ready, Set, Go (pgs.36-38) Complete: ____________
B: 3/8/2017 A: 3/9/2017	6.7 Pythagoras by Proportions	6.7 Ready, Set, Go (pgs.41-43) Complete: ____________
B: 3/10/2017 A: 3/13/2017	6.8 Are Relationships Predictable?	6.8 Ready, Set, Go (pgs.46-48) Complete: ____________
B: 3/14/2017 A: 3/15/2017	6.9 Relationships with Meaning	6.9 Ready, Set, Go (pgs.51-52) Complete: ____________
B: 3/16/2017	6.10 Finding the Value of a Relationship	6.10 Ready, Set, Go (pgs.55-56)

Homework

Finish 6.2 "Ready, Set, Go"