G.CO.D.12: Constructions 5
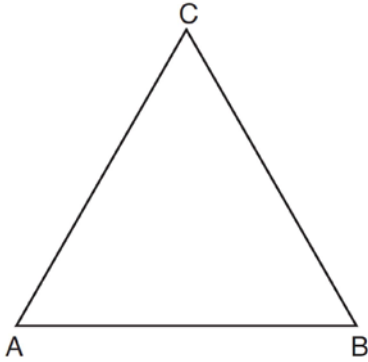
1   In the diagram below, $\triangle ABC$ is equilateral.
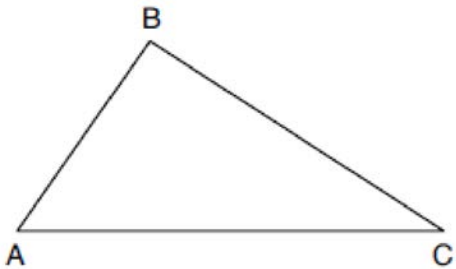

Using a compass and straightedge, construct a new equilateral triangle congruent to $\triangle ABC$ in the space below. [Leave all construction marks.]

2   Triangle XYZ is shown below. Using a compass and straightedge, on the line below, construct and label $\triangle ABC$, such that $\triangle ABC \cong \triangle XYZ$. [Leave all construction marks.] Based on your construction, state the theorem that justifies why $\triangle ABC$ is congruent to $\triangle XYZ$.
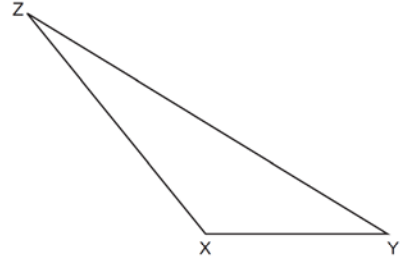
3 Using a compass and straightedge, dilate triangle *ABC* by a scale factor of 2 centered at *C*. [Leave all construction marks.]

5 Triangle *ABC* is shown below. Using a compass and straightedge, construct the dilation of △*ABC* centered at *B* with a scale factor of 2. [Leave all construction marks.]
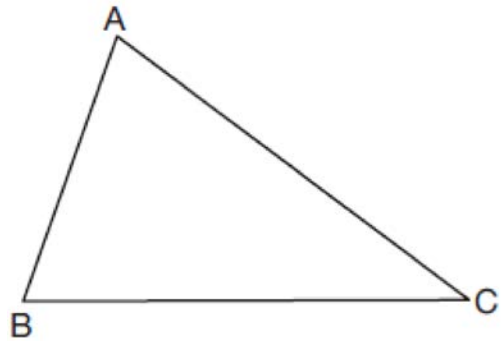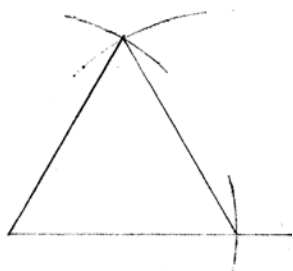
4 Using a compass and straightedge, construct and label △*A′B′C′*, the image of △*ABC* after a dilation with a scale factor of 2 and centered at *B*. [Leave all construction marks.] Describe the relationship between the lengths of $\overline{AC}$ and $\overline{A'C}$.

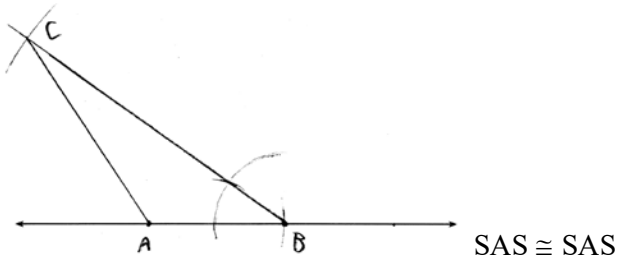Is the image of △*ABC* similar to the original triangle? Explain why.
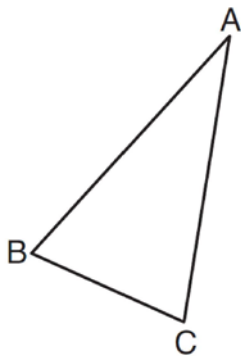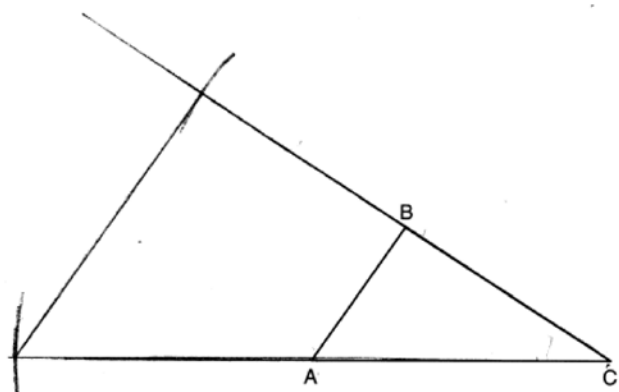
G.CO.D.12: Constructions 5
Answer Section

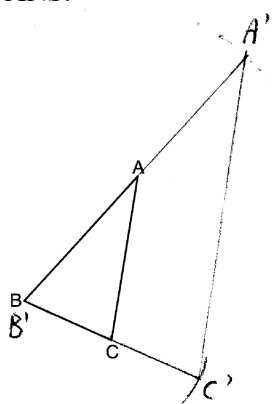1 ANS:

REF: 081532ge

2 ANS:

SAS ≅ SAS

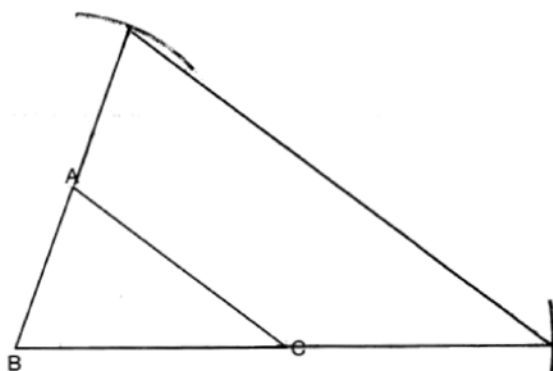REF: 011634geo

3 ANS:

REF: 082227geo

4 ANS:

The length of $\overline{A'C'}$ is twice $\overline{AC}$.

REF: 081632geo

5 ANS:

Yes, because a dilation preserves angle measure.

REF: 081932geo