Transformations

1. Translations with alternate notations

2. Corresponding angles, points, sides after rigid tranformations

3. Use in proofs

   (a) Reflection or rotation of a line segment
   (b) Rigid
   (c) Triangle midlines
   (d) Notation, standard "justify" language

4. Dilation impact on lengths, area, angles (volume)

Translations

1. Calculating results as coordinate pairs

2. Prime notation

3. Multiple transformations

4. Triangle $A'B'C'$ is the image of triangle ABC after a translation of 2 units to the right and 3 units up. Is triangle ABC congruent to tirangle $A'B'C'$? Explain why.

$\triangle ABC$ must be congruent to $\triangle A'B'C'$ because a translation is a basic rigid motion which preserves angle measure and side length. Therefore the 2 $\triangle$'s have all corresponding parts congruent.

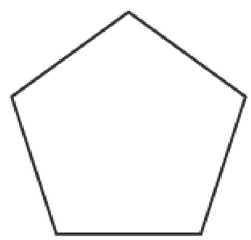
Yes, the $\triangle$'s are $\cong$ because a translation is a rigid motion so it preserves side lengths. ~~and angle measures~~ Because corr. sides have the same lengths, the $\triangle$'s are $\cong$ by SSS.

5. Symmetry: If when an object $A \to A'$ and $A = A'$ then we say it is symmetric.
   Reflection: *axis of symmetry*
   Rotation: *center and angle of rotation*

   Example: Regular polygons are symmetrical

   Which transformation would *not* carry a square onto itself?
   (1) a reflection over one of its diagonals
   (2) a 90° rotation clockwise about its center
   (3) a 180° rotation about one of its vertices
   (4) a reflection over the perpendicular bisector of one side

   The regular polygon below is rotated about its center.

   Which angle of rotation will carry the figure onto itself?

   Transformations

6. Triangle $A'B'C'$ is the image of triangle ABC after a translation of 2 units to the right and 3 units up. Is triangle ABC congruent to triangle $A'B'C'$? Explain why.
   (Yes). Translation is a (rigid motion). Angles and lengths are (preserved). Therefore, the $\triangle$s' corresponding sides are congruent. $\triangle ABC \cong \triangle A'B'C'$ by (SSS).

   Dilation preserves angle measures. Therefore the corresponding angles of the two triangles are congruent. $\triangle ABC \sim \triangle A'B'C'$ by (AAA).

7. Angelo says translation preserves length. Bartholemew thinks dilation preserves angle measures. Cathy adds that rotation preserves orientation. They are all right, but Doug is confused!

   Make a table showing which transformations (translation, reflection, rotation, and dilation) preserve which features (include distance or length, angle measure, slope, parallelism, perpendicularity, and orientation).

* add true/false claims
* Rewrite as a sentence

For example, for $D_{origin,k=2}$ & slope, write “Dilation preserves slope.”