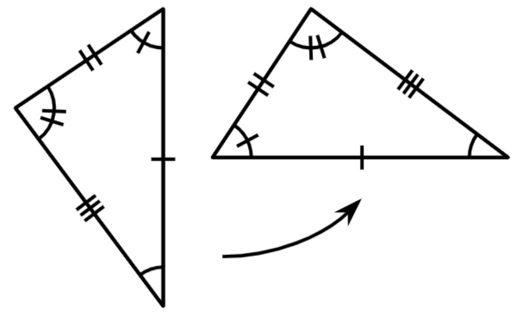
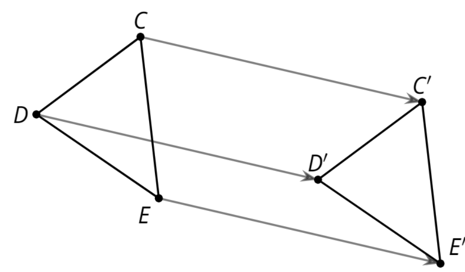
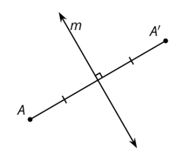
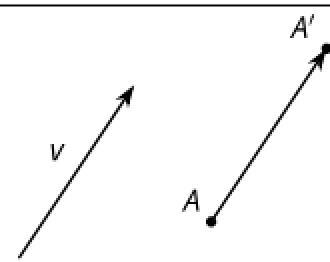
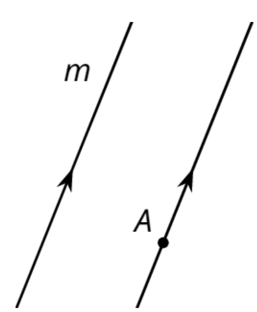
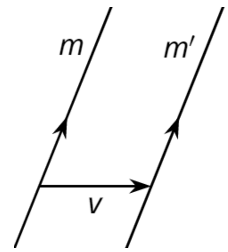
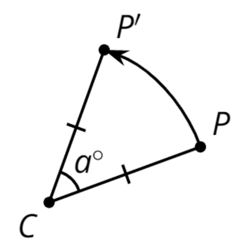
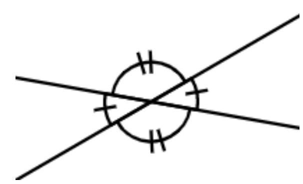
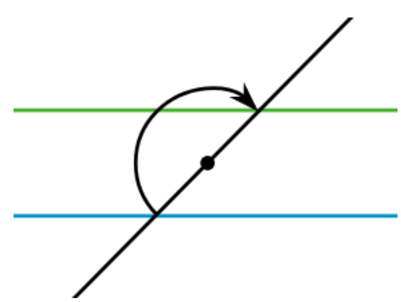
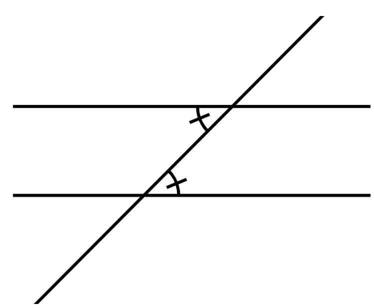
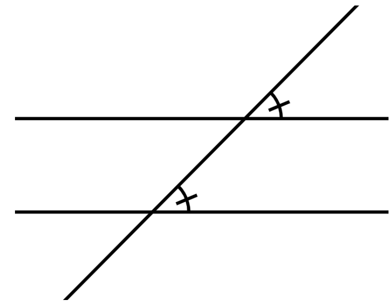
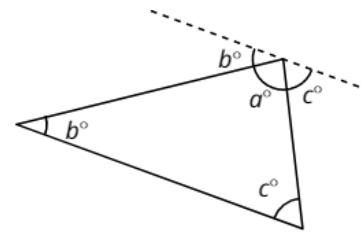
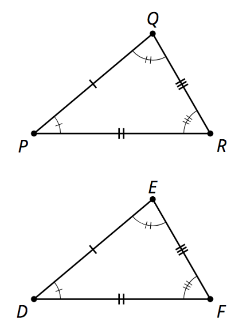
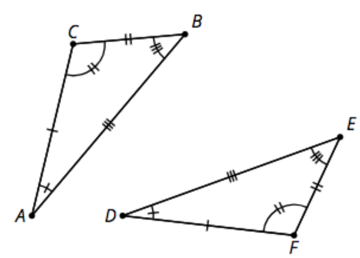
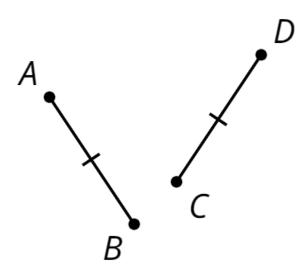
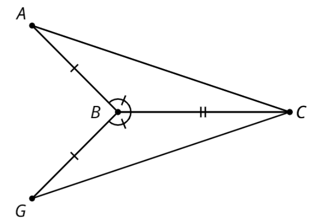
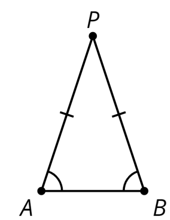
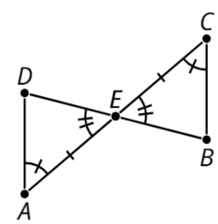
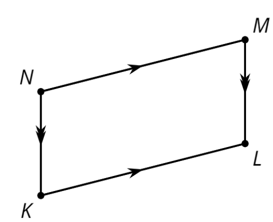
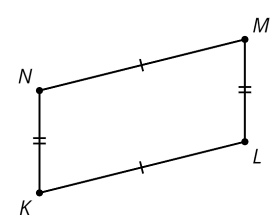
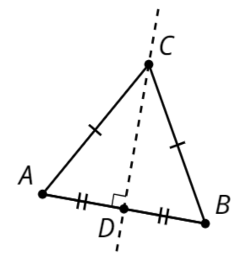
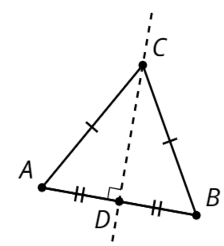
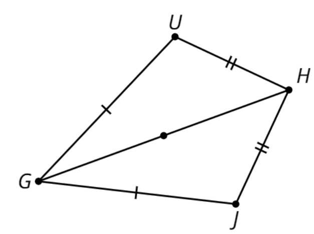
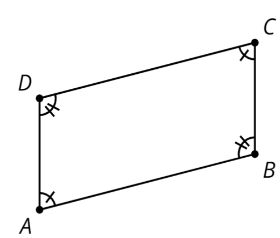
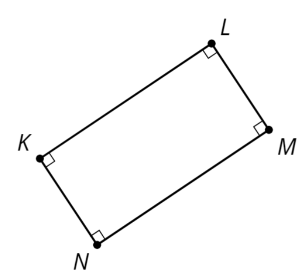
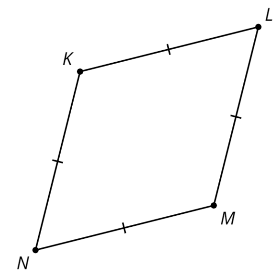
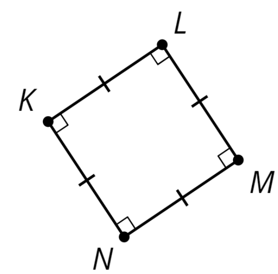
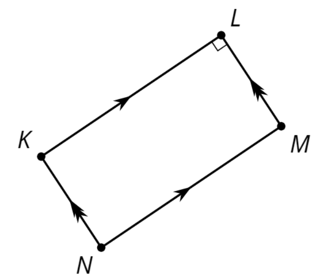
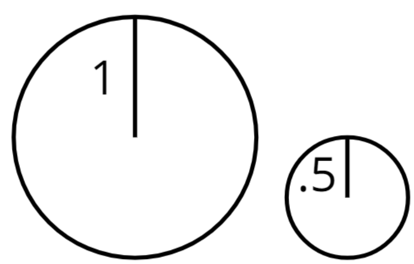
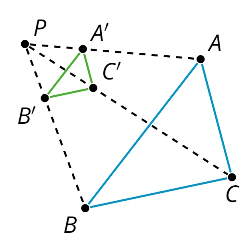
Lesson, Type	Statement	Diagram
U1, L10 (students will write the date) Assert	A rigid transformation is a translation, reflection, rotation, or any sequence of the three. Rigid transformations take lines to lines, angles to angles of the same measure, and segments to segments of the same length.	
U1, L10 Def’n	One figure is **congruent** to another if there is a sequence of translations, rotations, and reflections that takes the first figure exactly onto the second figure. The second figure is called the image of the rigid transformation.	 $\triangle EDC \cong \triangle E'D'C'$
U1, L11 Def’n	**Reflection** is a rigid transformation that takes a point to another point that is the same distance from the given line, is on the other side of the given line, and so that the segment from the original point to the image is perpendicular to the given line. Reflect _(object)_ across line _(name)_.	 Reflect A across line m.
U1, L12 Def’n	**Translation** is a rigid transformation that takes a point to another point so that the directed line segment from the original point to the image is parallel to the given line segment and has the same length and direction. Translate _(object)_ by the directed line segment _(name or from [point] to [point])_.	 Translate A by the directed line segment v.
U1, L12 Assert	**Parallel Postulate:** Given a line (m) and a point (A) that is not on m, there is exactly one line that goes through A that is parallel to m.	

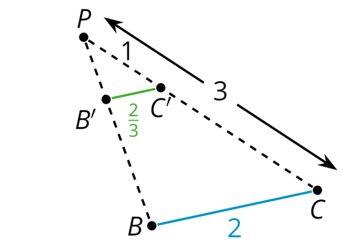
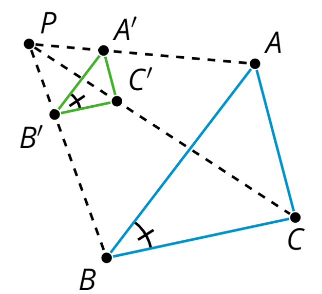
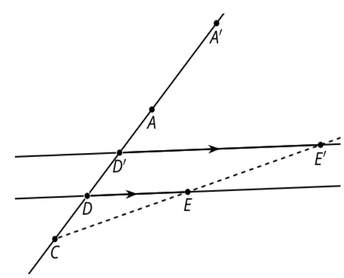
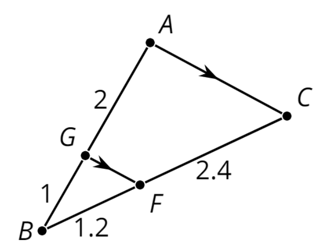
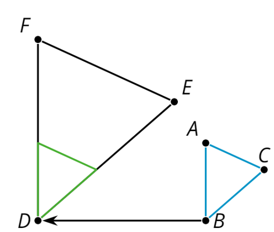
Lesson, Type	Statement	Diagram
U1, L12 Thm	Translations take lines to parallel lines or to themselves.	 m ∥ m′
U1, L14 Def'n	**Rotation** is a rigid transformation that takes a point to another point on the circle through the original point with the given center. The two radii to the original point and the image make the given angle. Rotate _(object)_ (clockwise or counterclockwise) by _(angle or angle measure)_ using center _(point)_.	 Rotate P counterclockwise by a° using center C.
U1, L19 Thm	Vertical angles are congruent.	
U1, L20 Assert	Rotation by 180 degrees takes lines to parallel lines or to themselves.	
U1, L20 Thm	**Alternate Interior Angle Theorem:** If two parallel lines are cut by a transversal, then alternate interior angles are congruent. Conversely, if two lines are cut by a transversal and alternate interior angles are congruent, then the lines have to be parallel.	

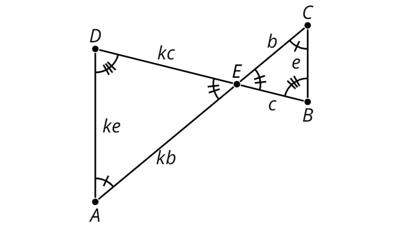
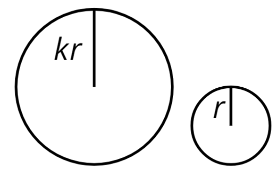
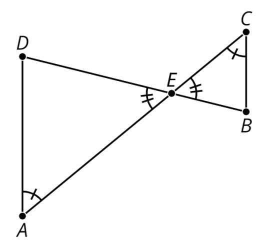
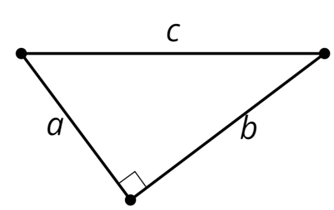
Lesson, Type	Statement	Diagram
U1, L20 Thm	**Corresponding Angle Theorem:** If two parallel lines are cut by a transversal, then corresponding angles are congruent. Conversely, if two lines are cut by a transversal and corresponding angles are congruent, then the lines have to be parallel.	
U1, L21 Thm	**Triangle Angle Sum Theorem:** The three angle measures of any triangle always sum to 180 degrees.	 $a + b + c = 180$
U2, L1 Thm	If two figures are congruent then corresponding parts of those figures must be congruent	 △PQR ≅ △DEF so PQ=DE, PR=DF, QR=EF, ∠P≅∠D, ∠Q≅∠E, ∠R≅∠F
U2, L3 Thm	If all pairs of corresponding sides and all pairs of corresponding angles are congruent, then the triangles must be congruent.	 AB=DE, BC=EF, CA=FD, ∠B≅∠E, ∠A≅∠D, ∠C≅∠F so, △ABC ≅ △DEF
U2, L5 Thm	If two segments have the same length, then they are congruent.	 AB≅CD

Lesson, Type	Statement	Diagram
U2, L6 Thm	**SAS Triangle Congruence:** In two triangles, if two pairs of congruent corresponding sides and the pair of corresponding angles between the sides are congruent, then the two triangles are congruent.	 AB=GB, BC=BC, ∠ABC≅∠GBC so △ABC ≅△GBC
U2, L6 Thm	**Isosceles Triangle Theorem:** In an isosceles triangle, the base angles are congruent.	 AP=PB so ∠A≅∠B
U2, L7 Thm	**ASA Triangle Congruence:** In two triangles, if two pairs of corresponding angles, and the pair of corresponding sides between the angles, are congruent, then the triangles must be congruent.	 ∠A≅∠C, AE=EC, ∠DEA≅∠BEC, so△DEA= △BEC
U2, L7 Def'n	A **parallelogram** is a quadrilateral with two pairs of opposite sides parallel.	 NM ‖ KL, NK ‖ ML, so MNKL is a parallelogram
U2, L7 Thm	In a parallelogram, pairs of opposite sides are congruent.	 MNKL is a parallelogram, so NM=KL, NK=ML

Lesson, Type	Statement	Diagram
U2, L8 Thm	If a point C is the same distance from A as it is from B, then C must be on the perpendicular bisector of AB.	 $AC=BC$, $AD=BD$, so $DC\perp AB$
U2, L8 Thm	If C is a point on the perpendicular bisector of AB, the distance from C to A is the same as the distance from C to B.	 $AB\perp CD$, $AD=BD$, so $AC=BC$
U2, L9 Thm	**SSS Triangle Congruence:** In two triangles, if all three pairs of corresponding sides are congruent, then the triangles must be congruent.	 $HU=HJ$, $UG=JG$, $HG=HG$ so, $\triangle HUG=\triangle HJG$
U2, L9 Thm	In a parallelogram, opposite angles are congruent.	 ABCD is a parallelogram so, $\angle A\cong\angle C$, $\angle D\cong\angle B$
U2, L12 Def’n	A **rectangle** is a quadrilateral with four right angles.	

Lesson, Type	Statement	Diagram
U2, L12 Def'n	A **rhombus** is a quadrilateral with four congruent sides.	
U2, L11 Def'n	A **square** is a quadrilateral with four congruent sides and four right angles.	
U2, L12 Thm	If a parallelogram has (at least) one right angle, then it is a rectangle.	
U3, L1 Def'n	**Scale factor** is the factor by which every length in an original figure is multiplied when you make a scaled copy.	 Scale factor is 2 or ½
U3, L3 Def'n	A **dilation** with center P and positive scale factor k takes a point A along the ray PA to another point whose distance is k times further away from P than A is. Dilate <u>_(object)_</u> using center <u>_(point)_</u> and a scale factor of <u>_(number)_</u>.	 PA' = k • PA

Lesson, Type	**Statement**	**Diagram**
U3, L3 Assert	The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	 PC:PC′ = 3:1, BC:B′C′ = 2: $\frac{2}{3}$
U3, L4 Assert	Corresponding angles of the original figure and the dilated image are congruent.	
U3, L4 Thm	A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	 Dilate using center *C*, so DE ∥ D′E′
U3, L5 Thm	If a line divides two sides of a triangle proportionally, the line must be parallel to the third side of the triangle.	 $\frac{1}{2} = \frac{1.2}{2.4}$ so AC ∥ GF
U3, L6 Def'n	One figure is **similar** to another if there is a sequence of rigid transformations and dilations that takes the first figure so that it fits exactly over the second.	 Translation and dilation takes $\triangle ABC$ onto $\triangle DEF$ so $\triangle ABC \sim \triangle DEF$

Lesson, Type	**Statement**	**Diagram**
U3, L7 Thm	If two triangles have all pairs of corresponding angles congruent and all pairs of corresponding side lengths in the same proportion, then the two triangles are similar.	 ∠A≅∠C, ∠D≅∠B, ∠DEA≅∠BEC, $\frac{AD}{CB} = \frac{DE}{BE} = \frac{EA}{EC}$ so △DEA~△BEC
U3, L8 Thm	All circles are similar.	
U3, L9 Thm	**AA Triangle Similarity:** In two triangles, if two pairs of corresponding angles are congruent, then the triangles must be similar.	 ∠A≅∠C, ∠DEA≅∠BEC, so △DEA~△BEC
U3, L14 Thm	**Pythagorean Theorem:** If a right triangle has legs *a* and *b* and hypotenuse *c*, then $a^2 + b^2 = c^2$.	 $a^2 + b^2 = c^2$