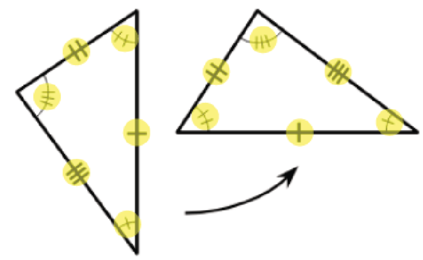
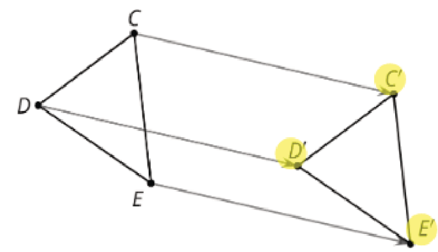
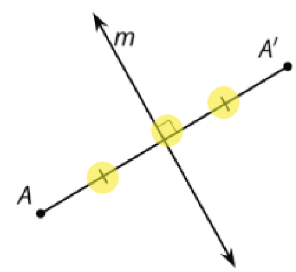
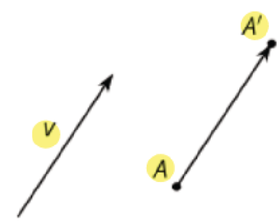
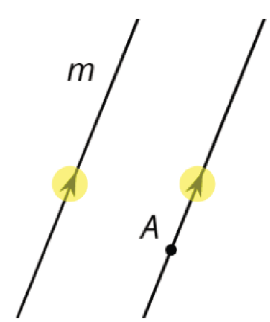
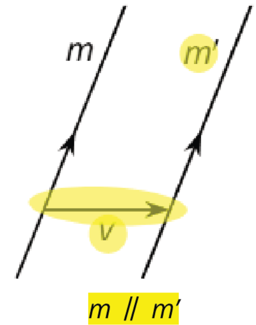
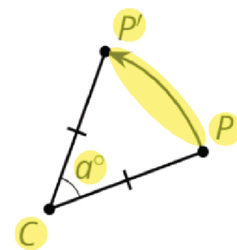
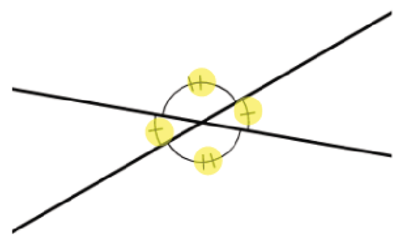
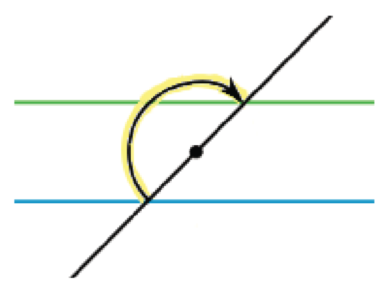
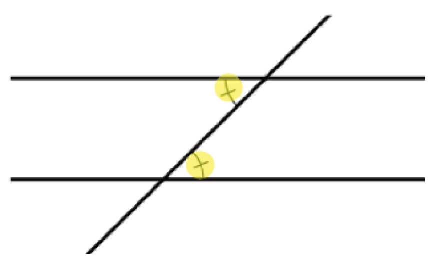
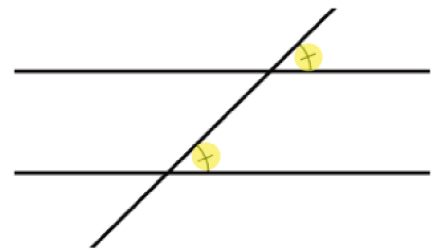
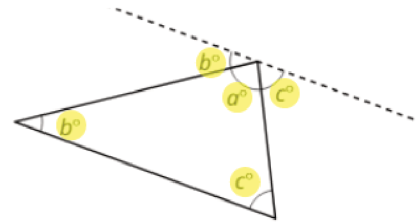
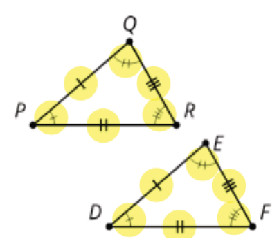
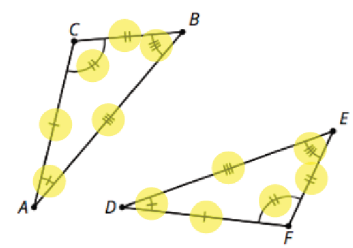
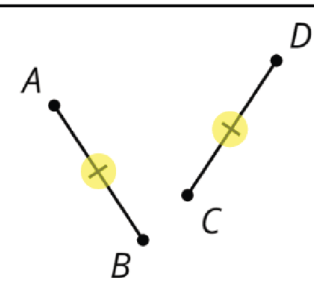
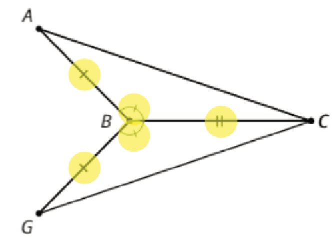
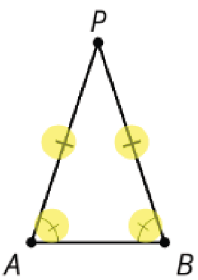
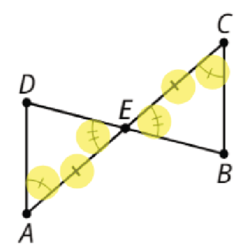
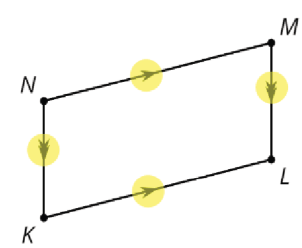
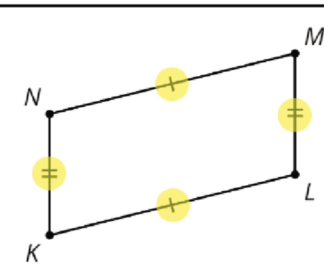
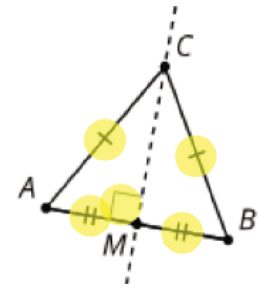
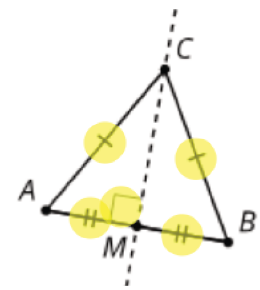
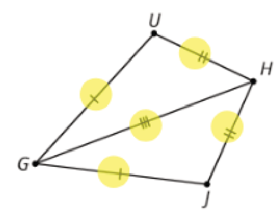
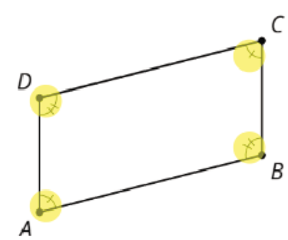
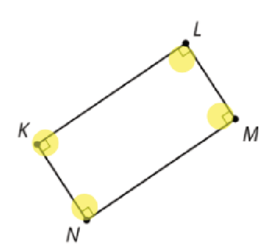
date, type	statement	diagram

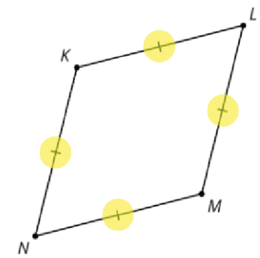
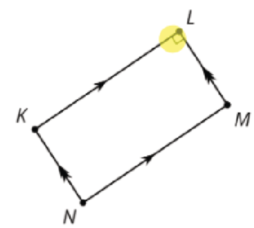
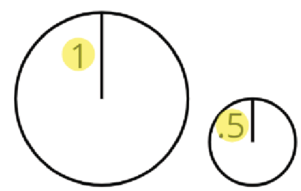
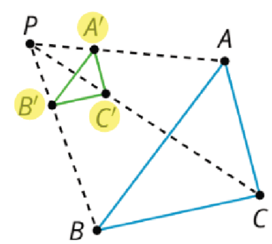
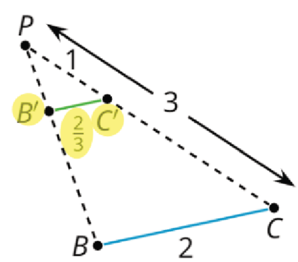
lesson, type	statement	diagram
U1, L10 (students write the date) assertion	A **rigid transformation** is a translation, reflection, rotation, or any sequence of the three. Rigid transformations take lines to lines, angles to angles of the same measure, and segments to segments of the same length.	
U1, L10 definition	Two figures are **congruent** if there is a sequence of translations, rotations, and reflections that takes one figure exactly onto the other. The second figure is called the image of the rigid transformation.	 $\triangle EDC \cong \triangle E'D'C'$
U1, L11 definition	**Reflection** is a rigid transformation that takes a point to another point that is the same distance from the given line, that 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 definition	**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 assertion	**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*.	

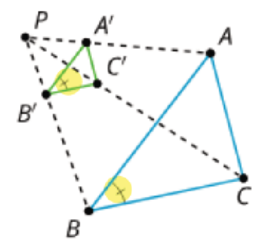
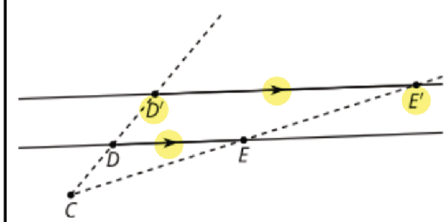
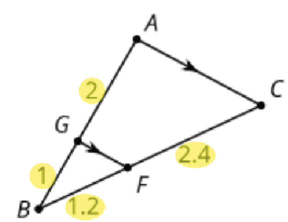
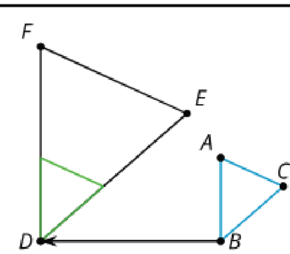
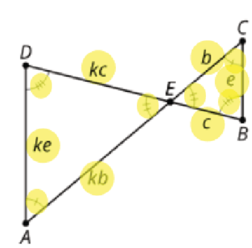
lesson, type	statement	diagram
U1, L12 theorem	Translations take lines to parallel lines or to themselves.	
U1, L14 definition	**Rotation** is a rigid transformation that takes a point to another point on the circle through the original point with the given center. The two radii, the one from the center to the original point and the one from the center to 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 theorem	Vertical angles are congruent.	
U1, L20 assertion	Rotation by 180 degrees takes lines to parallel lines or to themselves.	
U1, L20 theorem	**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.	

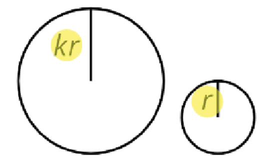
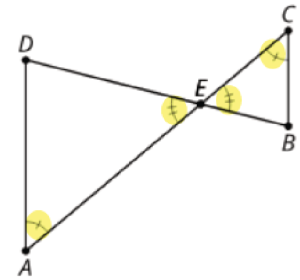
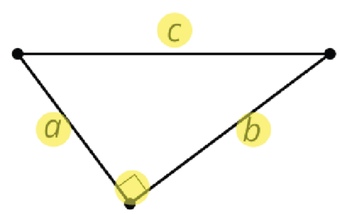
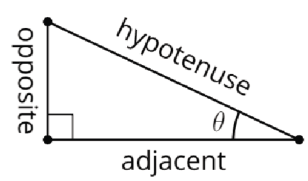
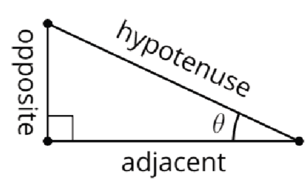
lesson, type	statement	diagram
U1, L20 theorem	**Corresponding Angle Theorem:** If two parallel lines are cut by a transversal, then corresponding angles are congruent. Conversely, if two lines are cut by a transversal and corresponding angles are congruent, then the lines have to be parallel.	
U1, L21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

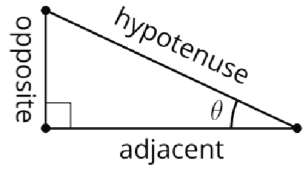
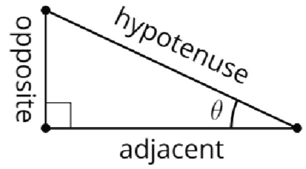
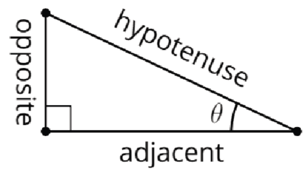
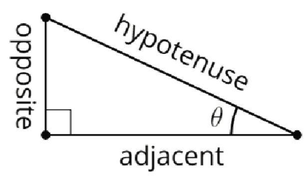
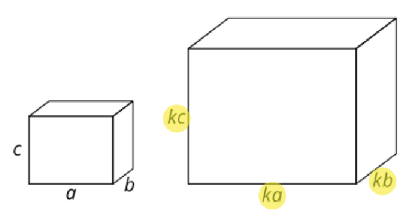
lesson, type	statement	diagram
U2, L6 theorem	**Side-Angle-Side Triangle Congruence Theorem:** In two triangles, if two pairs of congruent corresponding sides and the pair of corresponding angles between the sides are congruent, then the two triangles are congruent.	 $\overline{AB}\cong\overline{GB}$, $\overline{BC}\cong\overline{BC}$, $\angle ABC\cong\angle GBC$ so $\triangle ABC\cong\triangle GBC$
U2, L6 theorem	**Isosceles Triangle Theorem:** In an isosceles triangle, the base angles are congruent.	 $\overline{AP}\cong\overline{PB}$, so $\angle A\cong\angle B$
U2, L7 theorem	**Angle-Side-Angle Triangle Congruence Theorem:** In two triangles, if two pairs of corresponding angles are congruent and the pair of corresponding sides between the angles is congruent, then the triangles must be congruent.	 $\angle A\cong\angle C$, $\overline{AE}\cong\overline{EC}$, $\angle DEA\cong\angle BEC$, so $\triangle DEA\cong\triangle BEC$
U2, L7 definition	A **parallelogram** is a quadrilateral with two pairs of opposite sides parallel.	 *NM* // *KL*, *NK* // *ML*, so *MNKL* is a parallelogram
U2, L7 theorem	In a parallelogram, pairs of opposite sides are congruent.	 *MNKL* is a parallelogram, so $\overline{NM}\cong\overline{KL}$, $\overline{NK}\cong\overline{ML}$

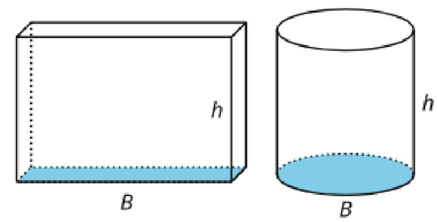
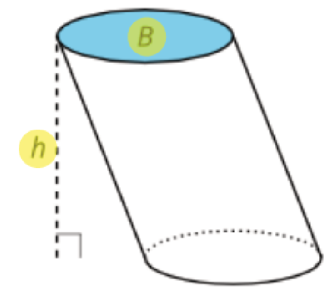
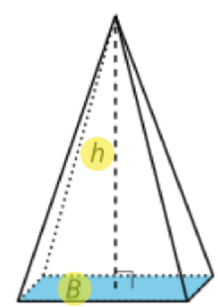
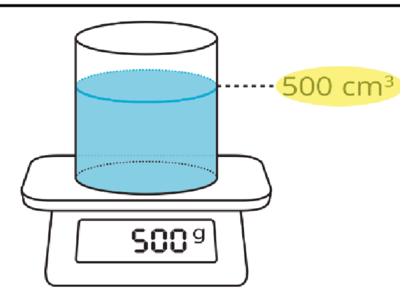
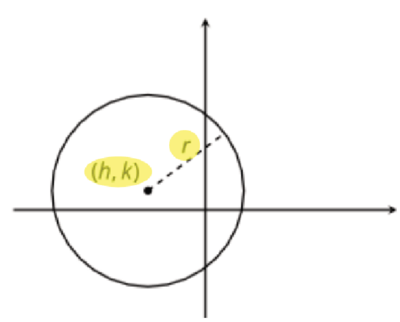
lesson, type	**statement**	**diagram**
U2, L8 theorem	If a point *C* is the same distance from *A* as it is from *B*, then *C* must be on the perpendicular bisector of *AB*.	 $\overline{AC}\cong\overline{BC}$, so *C* is on the line through midpoint *M* perpendicular to $\overline{AB}$.
U2, L8 theorem	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*.	 $AB\perp CM$, $\overline{AM}\cong\overline{BM}$, so $\overline{AC}\cong\overline{BC}$
U2, L9 theorem	**Side-Side-Side Triangle Congruence Theorem:** In two triangles, if all three pairs of corresponding sides are congruent, then the triangles must be congruent.	 $\overline{HU}\cong\overline{HJ}$, $\overline{UG}\cong\overline{JG}$, $\overline{HG}\cong\overline{HG}$, so $\triangle HUG \cong \triangle HJG$
U2, L9 theorem	In a parallelogram, opposite angles are congruent.	 *ABCD* is a parallelogram, so $\angle A\cong\angle C$, $\angle D\cong\angle B$
U2, L12 definition	A **rectangle** is a quadrilateral with four right angles.	

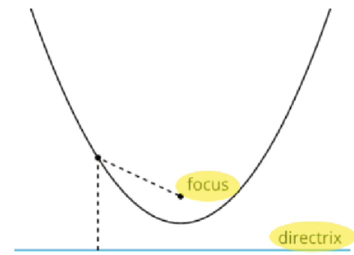
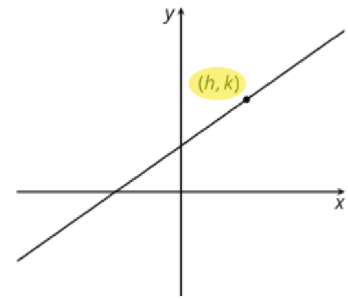
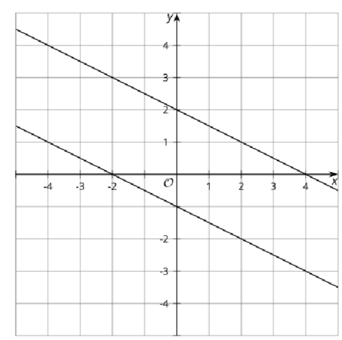
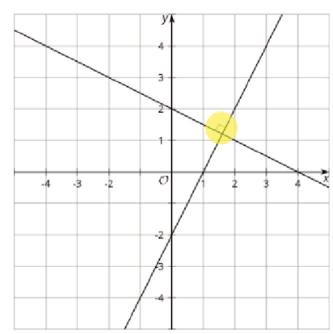
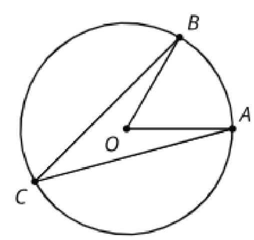
lesson, type	statement	diagram
U2, L12 definition	A **rhombus** is a quadrilateral with four congruent sides.	
U2, L12 theorem	If a parallelogram has (at least) one right angle, then it is a rectangle.	 *KLMN* has a right angle so it is a rectangle
U3, L1 definition	**Scale factor** is the factor by which every length in an original figure is multiplied when you make a scaled copy.	 Scale factor is 2 or ½
U3, L1 definition	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 _(object)_ using center _(point)_ and a scale factor of _(number)_.	 $PA' = k \cdot PA$
U3, L3 assertion	The dilation of a line segment is longer or shorter according to the same ratio given by the scale factor.	 $PC:PC' = 3:1$, $BC:B'C' = 2:\frac{2}{3}$

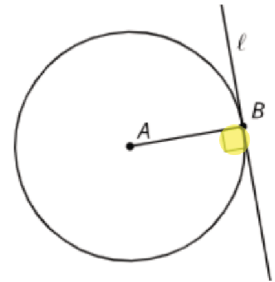
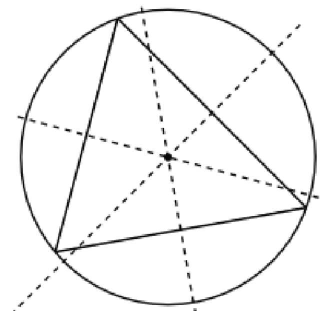
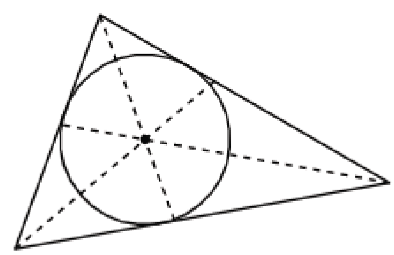
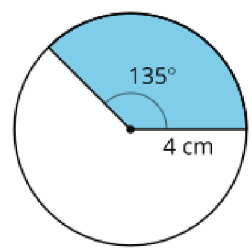
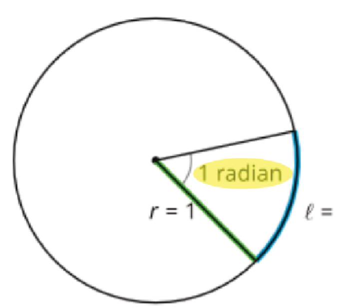
lesson, type	statement	diagram
U3, L4 assertion	If a figure is dilated, then corresponding angles are congruent.	 $\triangle A'B'C'$ is a dilation of $\triangle ABC$ so $\angle B \cong \angle B'$
U3, L4 theorem	A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	 Dilate using center C. $DE \parallel D'E'$
U3, L5 theorem	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 $AC \parallel GF$
U3, L6 definition	One figure is **similar** to another if there is a sequence of rigid motions and dilations that takes the first figure so that it fits exactly over the second.	 Translation and dilation takes $\triangle ABC$ onto $\triangle FDE$ so $\triangle ABC \sim \triangle FDE$
U3, L7 theorem	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.	 $\angle A \cong \angle C$, $\angle D \cong \angle B$, $\angle DEA \cong \angle BEC$, $\frac{AD}{CB} = \frac{DE}{BE} = \frac{EA}{EC}$ so $\triangle DEA \sim \triangle BEC$

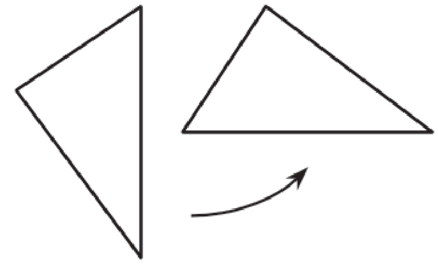
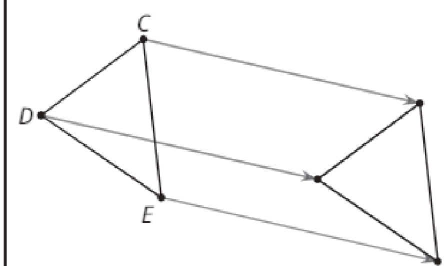
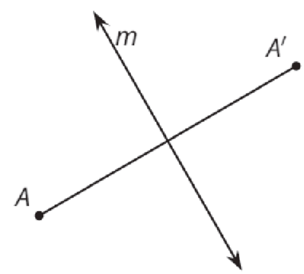
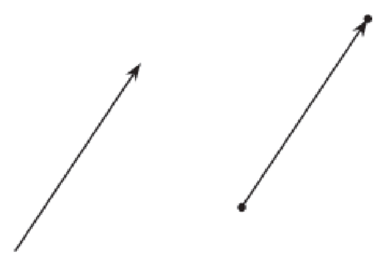
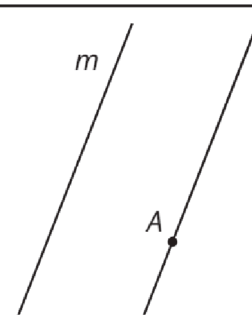
lesson, type	statement	diagram
U3, L8 theorem	All circles are similar.	
U3, L9 theorem	**Angle-Angle Triangle Similarity Theorem:** In two triangles, if two pairs of corresponding angles are congruent, then the triangles must be similar.	 $\angle A \cong \angle C$, $\angle DEA \cong \angle BEC$, so $\triangle DEA \sim \triangle BEC$
U3, L14 theorem	**Pythagorean Theorem:** If a right triangle has legs with lengths a and b and hypotenuse with length c, then $a^2 + b^2 = c^2$.	 $a^2 + b^2 = c^2$
U4, L6 definition	The **cosine** of an acute angle in a right triangle is the ratio (quotient) of the length of the adjacent leg to the length of the hypotenuse.	 $\cos(\theta) = \frac{\text{adjacent}}{\text{hypotenuse}}$
U4, L6 definition	The **sine** of an acute angle in a right triangle is the ratio (quotient) of the length of the opposite leg to the length of the hypotenuse.	 $\sin(\theta) = \frac{\text{opposite}}{\text{hypotenuse}}$

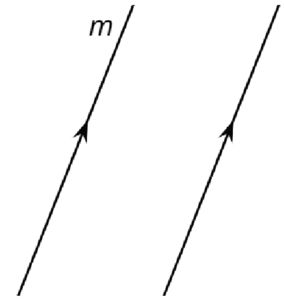
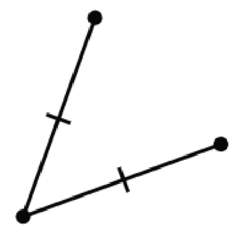
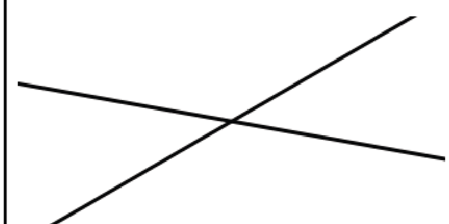
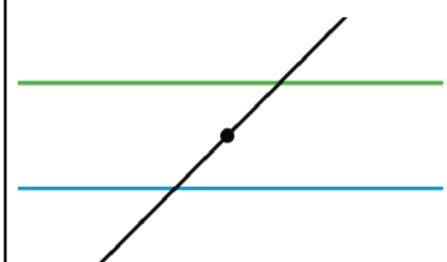
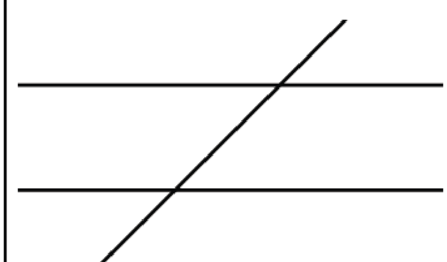
lesson, type	statement	diagram
U4, L6 definition	The **tangent** of an acute angle in a right triangle is the ratio (quotient) of the length of the opposite leg to the length of the adjacent leg.	 $\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$
U4, L10 definition	The **arccosine** of a number between 0 and 1 is the measure of an acute angle whose cosine is that number.	 $\arccos\left(\frac{\text{adjacent}}{\text{hypotenuse}}\right) = \theta$
U4, L10 definition	The **arcsine** of a number between 0 and 1 is the measure of an acute angle whose sine is that number.	 $\arcsin\left(\frac{\text{opposite}}{\text{hypotenuse}}\right) = \theta$
U4, L10 definition	The **arctangent** of a positive number is the measure of an angle whose tangent is that number.	 $\arctan\left(\frac{\text{opposite}}{\text{adjacent}}\right) = \theta$
U5, L6 theorem	When any solid is dilated using a scale factor of k, all lengths are multiplied by k, all areas are multiplied by k^2, and all volumes are multiplied by k^3.	

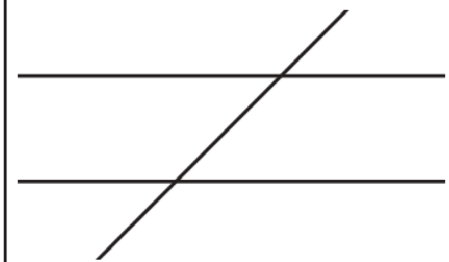
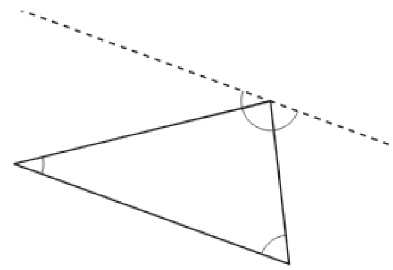
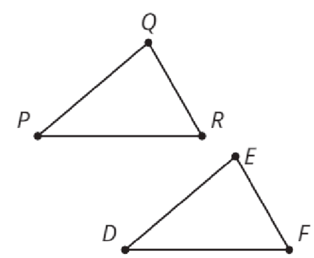
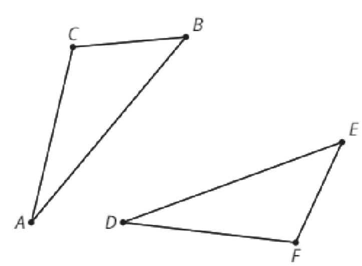
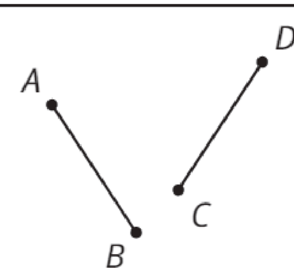
lesson, type	statement	diagram
U5, L10 theorem	**Cavalieri's Principle**: If two solids are cut into cross sections by parallel planes, and the corresponding cross sections on each plane always have equal areas, then the two solids have the same volume.	
U5, L10 theorem	A prism or cylinder whose base has an area of B square units and whose height is h units has volume of Bh cubic units, regardless of the shape of the base or whether the solid is oblique.	
U5, L13 theorem	A pyramid or cone whose base has an area of B square units and whose height is h units has volume of $\frac{1}{3}Bh$ cubic units, regardless of the shape of the base or whether the solid is oblique.	
U5, L17 definition	The **density** of a substance is the mass of the substance per unit volume. That is, $\text{density} = \frac{\text{mass}}{\text{volume}}$.	 density = 1 g per cm^3
U6, L4 theorem	A circle with center (h, k) and radius r has equation $(x - h)^2 + (y - k)^2 = r^2$.	

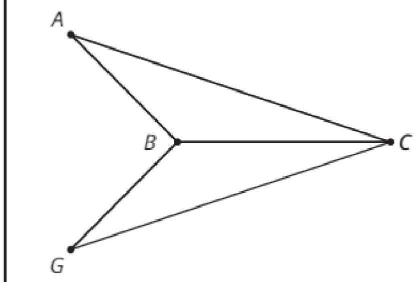
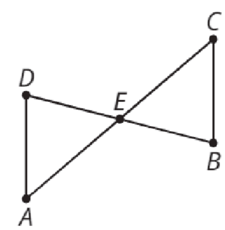
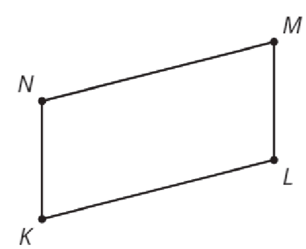
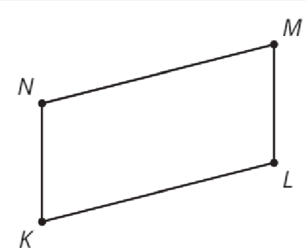
lesson, type	statement	diagram
U6, L7 definition	A **parabola** is the set of points that are equidistant from a given point, called the **focus**, and a given line, called the **directrix**.	
U6, L9 definition	The **point-slope form** of the equation of a line is $y - k = m(x - h)$ where (h, k) is a particular point on the line and m is the slope of the line.	
U6, L10 theorem	Lines are parallel if and only if they have equal slopes.	
U6, L11 theorem	Lines are perpendicular if and only if their slopes are opposite reciprocals.	
U7, L2 assertion	**Inscribed Angle Theorem:** The measure of an inscribed angle is half the measure of the central angle that defines the same arc.	 $m\angle BCA = \frac{1}{2} m\angle BOA$

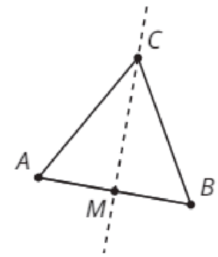
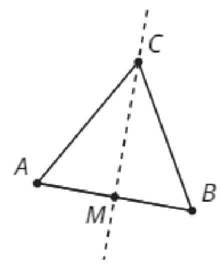
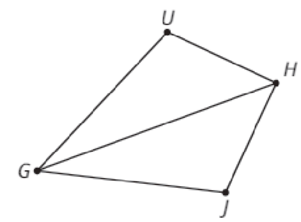
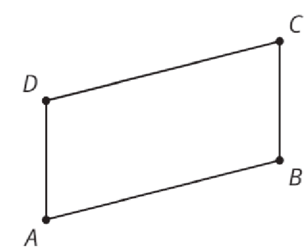
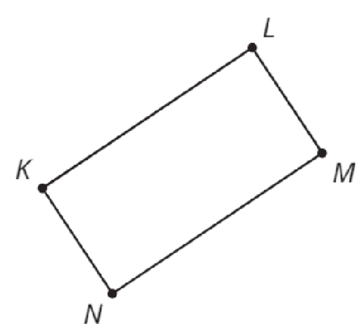
lesson, type	statement	diagram
U7, L3 theorem	A line is tangent to a circle if and only if it is perpendicular to the radius drawn to the point of tangency.	 $\overline{AB} \perp \ell$
U7, L5 theorem	The three perpendicular bisectors of the sides of a triangle meet at a single point, called the triangle's **circumcenter**. This point is the center of the triangle's circumscribed circle.	
U7, L7 theorem	The three angle bisectors of a triangle meet at a single point, called the triangle's **incenter**. This point is the center of the triangle's inscribed circle.	
U7, L8 theorem	To calculate the area of a sector or the length of an arc, first find the fraction of the circle represented by the central angle of the arc or sector. Multiply this fraction by the circle's area or circumference.	 arc length: 3π cm sector area: 6π cm^2
U7, L11 definition	For any angle, imagine drawing a circle with the angle's vertex at its center. Then, the "**radian** measure of the angle" is the ratio of the length of the arc defined by the angle to the circle's radius. That is, $\theta = \frac{arc\ length}{radius}$.	

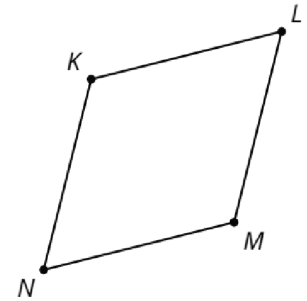
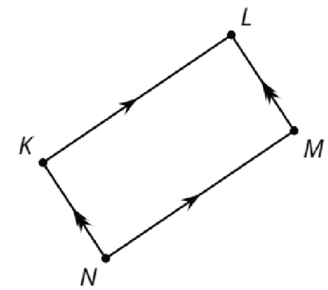
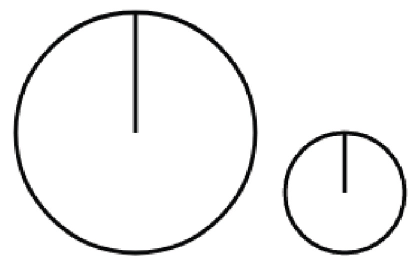
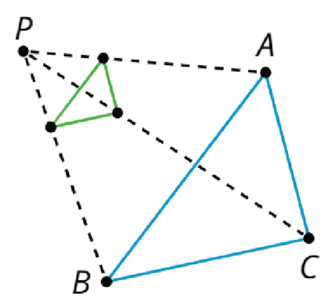
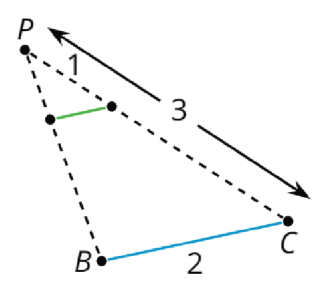
date, type	statement	diagram
assertion	A ______________________ is a ____________, ____________, ____________, or any sequence of the three. Rigid transformations take lines to ____________, angles to ____________ of the same measure, and segments to ____________ of the same length.	
definition	Two figures are ____________ if there is a sequence of ____________, ____________, and ____________ that takes the one figure ____________ onto the other. The second figure is called the ____________ of the rigid transformation.	
definition	____________ is a rigid transformation that takes a point to another point that is the same ____________ from the given line, that is on the other side of the given line, and so that the segment from the original point to the image is ______________ to the given line. Reflect <u>(object)</u> across line <u>(name)</u>.	Reflect *A* across line *m*.
definition	____________ is a rigid transformation that takes a point to another point so that the directed ______________________ from the original point to the image is ____________ to the given line segment and has the same ____________ and ____________. Translate <u>(object)</u> by the directed line segment <u>(name or from [point] to [point])</u>.	Translate *A* by the directed line segment *v*.
assertion	**Parallel Postulate:** Given a ____________ *m* and a ____________ *A* that is not on ____, there is exactly ____________ that goes through *A* that is ____________ to *m*.	

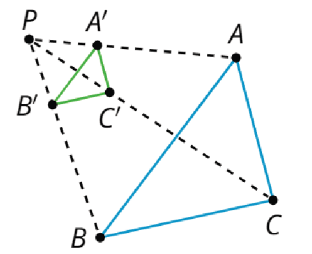
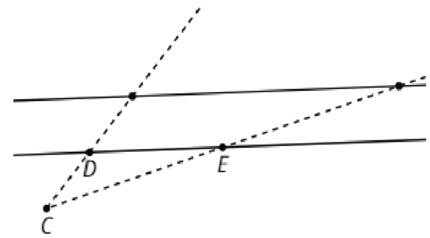
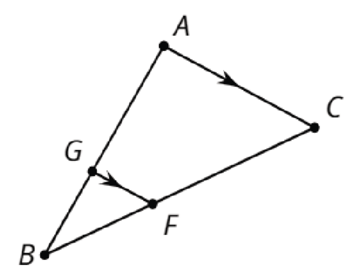
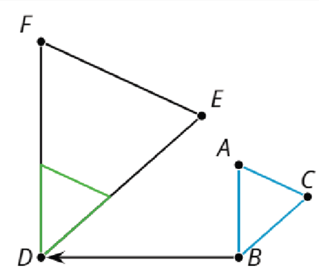
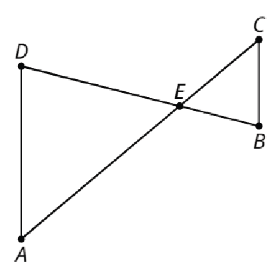
date, type	**statement**	**diagram**
theorem	______________ take lines to ___________________________ or to ______________.	
definition	______________ is a ______________ transformation that takes a point to another point on the circle through the original point with the given ______________. The two radii, the one from the center to the original point and the one from the center to the image, make the given ______________. Rotate _(object)_ (clockwise or counterclockwise) by _(angle or angle measure)_ using center _(point)_.	 Rotate *P* counterclockwise by $a°$ using center *C*.
theorem	______________ angles are ______________.	
assertion	______________ by ______________ takes lines to ______________ lines or to ______________.	
theorem	____________________________ **Angle Theorem:** If two ______________ lines are cut by a ______________, then alternate interior angles are ______________. Conversely, if two lines are cut by a ______________ and alternate interior angles are ______________, then the lines have to be ______________.	

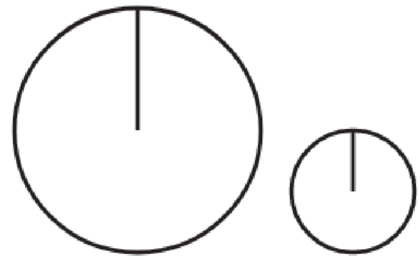
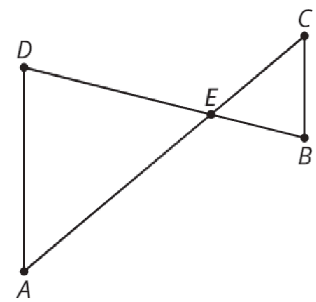
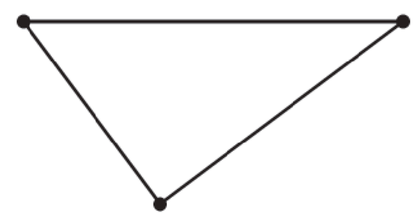
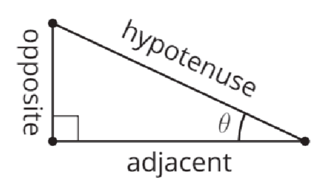
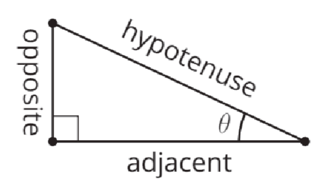
date, type	statement	diagram
theorem	______________ **Angle Theorem:** If two ______________ lines are cut by a ______________, then corresponding angles are ______________. Conversely, if two ______________ are cut by a ______________ and corresponding angles are congruent, then the lines have to be ______________.	
theorem	**Triangle ______________ Theorem:** The three ______________ measures of any ______________ always sum to _____ degrees.	
theorem	If two figures are ______________, then ______________ parts of those figures must be ______________.	 $\triangle DEF \cong \triangle PQR$ so $\overline{PQ} \cong \overline{DE}$, $\overline{PR} \cong \overline{DF}$, $\overline{QR} \cong \overline{EF}$, $\angle P \cong \angle D$, $\angle Q \cong \angle E$, $\angle R \cong \angle F$
theorem	If all pairs of corresponding ______________ and all pairs of corresponding ______________ are congruent, then the ______________ must be ______________.	 $\overline{AB} \cong \overline{DE}$, $\overline{BC} \cong \overline{EF}$, $\overline{AC} \cong \overline{DF}$, $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$ so
theorem	If two ______________ have the same ______________, then they are ______________.	

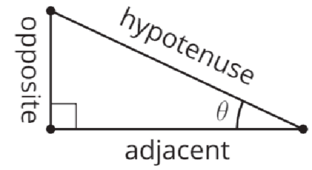
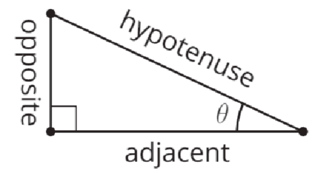
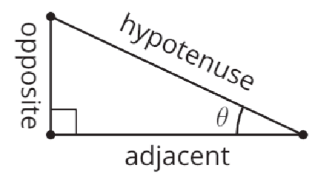
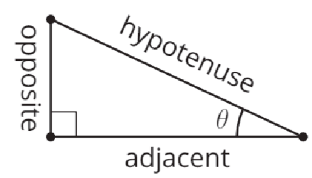
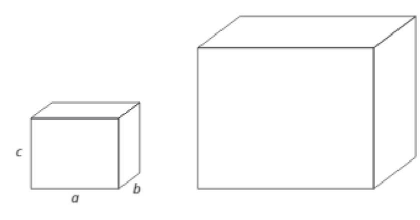
date, type	**statement**	**diagram**
theorem	______________________ **Triangle Congruence Theorem:** In two triangles, if two pairs of congruent ______________ and the pair of corresponding ________ between the sides are ________, then the two triangles are ________.	 $\overline{AB} \cong \overline{GB}$, $\overline{BC} \cong \overline{BC}$, $\angle ABC \cong \angle GBC$ so
theorem	________ **Triangle Theorem:** In an ________ triangle, the ______________ are ________.	
theorem	______________________ **Triangle Congruence Theorem:** In two triangles, if two pairs of corresponding ________ are ________ and the pair of corresponding ________ between the ________ is ________, then the triangles must be ________.	 $\angle A \cong \angle C$, $\overline{AE} \cong \overline{EC}$, $\angle DEA \cong \angle BEC$, so
definition	A ________ is a quadrilateral with two pairs of ________ sides ________.	 $NM \parallel KL$, $NK \parallel ML$, so
theorem	In a ________, pairs of ________ sides are ________.	 *MNKL* is a parallelogram, so

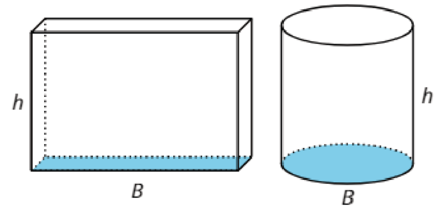
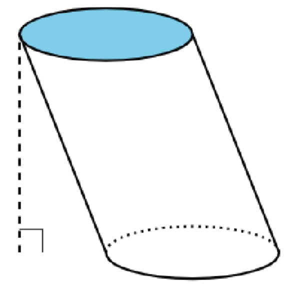
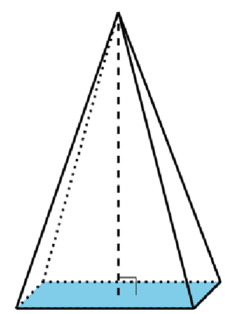
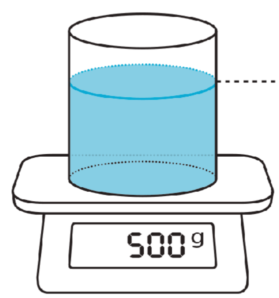
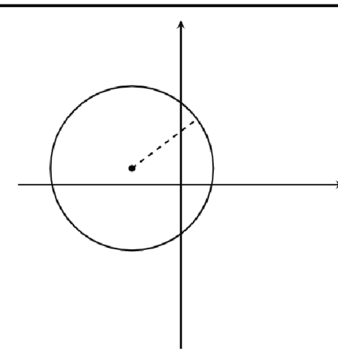
date, type	statement	diagram
theorem	If a ______________ *C* is the same ______________ from _____ as it is from _____, then *C* must be on the ______________________________ of *AB*.	 $\overline{AC} \cong \overline{BC}$, so
theorem	If *C* is a point on the ____________________________ of *AB*, the distance from _____ to _____ is the same as the ______________ from _____ to _____.	 $AB \perp CM$, $\overline{AM} \cong \overline{BM}$, so
theorem	____ **Triangle Congruence Theorem:** In two triangles, if ____________________________ of corresponding ______________ are congruent, then the triangles must be ______________.	 $\overline{HU} \cong \overline{HJ}$, $\overline{UG} \cong \overline{JG}$, $\overline{HG} \cong \overline{HG}$, so
theorem	In a ______________, ______________ angles are ______________.	 *ABCD* is a parallelogram, so
definition	A ______________ is a quadrilateral with four ____________________________.	

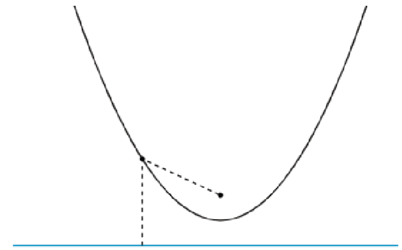
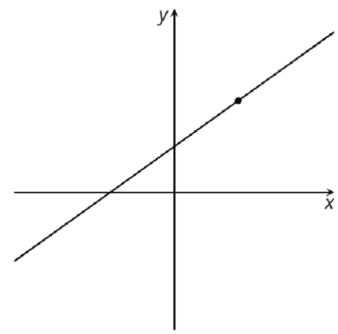
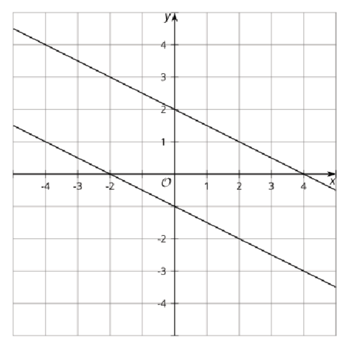
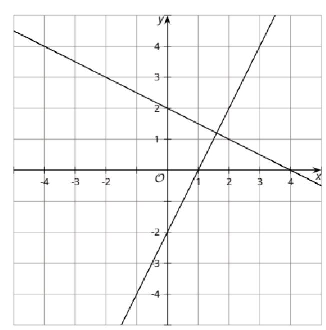
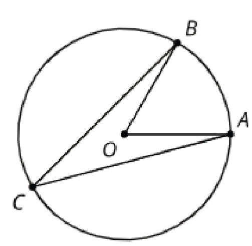
date, type	statement	diagram
definition	A ____________ is a quadrilateral with four ____________ sides.	
theorem	If a ____________ has (at least) one ______________, then it is a ____________.	
definition	________________________ is the factor by which every ____________ in an original figure is ____________ when you make a ____________ copy.	
definition	A ____________ with center P and positive ________________________ k takes a point A along the ____________ PA to another point whose ____________ is k times further away from P than ____ is. Dilate (object) using center (point) and a scale factor of (number).	
assertion	The ____________ of a line segment is ____________ or shorter according to the same ____________ given by the ________________________.	

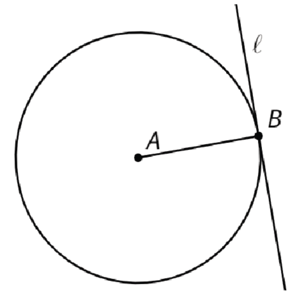
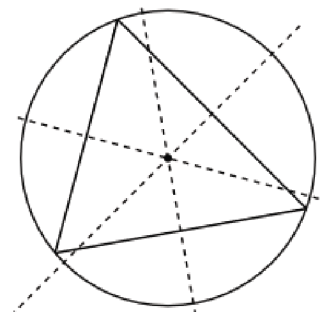
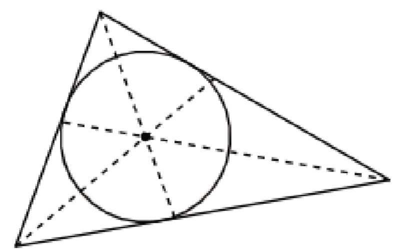
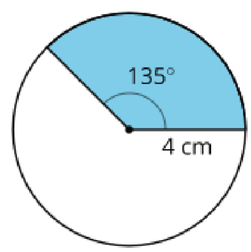
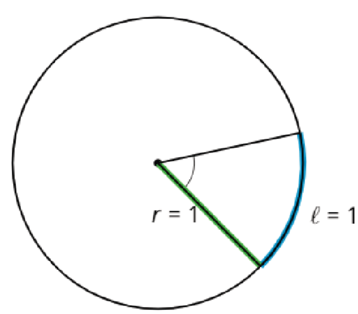
date, type	statement	diagram
assertion	If a figure is ______________, then corresponding ______________ are ______________.	
theorem	A ______________ takes a line not passing through the ______________ of the dilation to a ______________ line, and leaves a line passing through the ______________ unchanged.	
theorem	If a line divides two ______________ of a triangle proportionally, the ______________ must be ______________ to the ____________________________ of the triangle.	
definition	One figure is ______________ to another if there is a sequence of ____________________________ and _______________ that takes the first figure so that it fits ______________ over the second.	
theorem	If two ______________ have all pairs of corresponding ______________ congruent, and all pairs of corresponding ____________________________ in the same proportion, then the two triangles are ______________.	 $\angle A \cong \angle C$, $\angle D \cong \angle B$, $\angle DEA \cong \angle BEC$, $\frac{AD}{CB} = \frac{DE}{BE} = \frac{EA}{EC}$ so

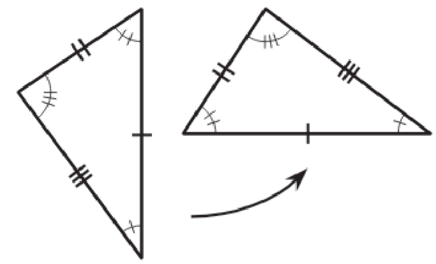
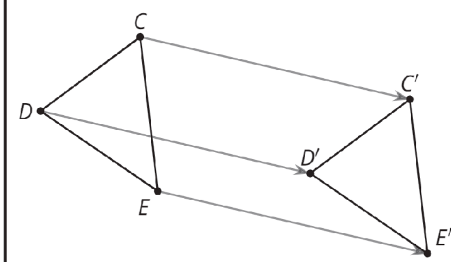
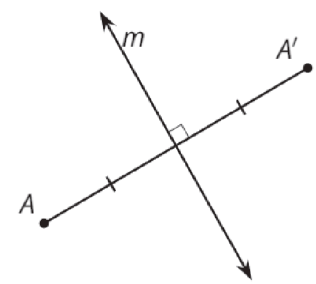
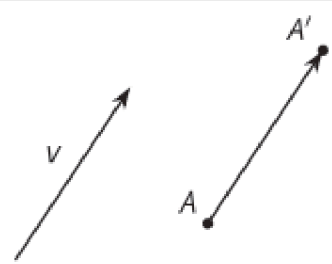
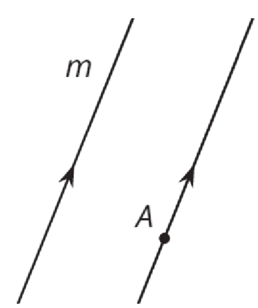
date, type	**statement**	**diagram**
theorem	All ____.	
theorem	____________________________ **Triangle Similarity Theorem:** In two ______________, if ______________ pairs of corresponding ______________ are congruent, then the triangles must be ______________.	
theorem	______________ **Theorem:** If a ______________ triangle has ______________ with lengths _____ and _____ and hypotenuse with length c, then ____________.	
definition	The ______________ of an acute angle in a ______________ triangle is the ratio (quotient) of the length of the ______________ leg to the length of the ______________.	
definition	The ______________ of an acute angle in a ______________ triangle is the ratio (quotient) of the length of the ______________ leg to the length of the ______________.	

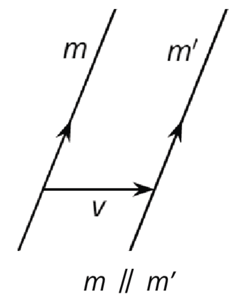
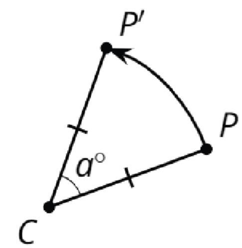
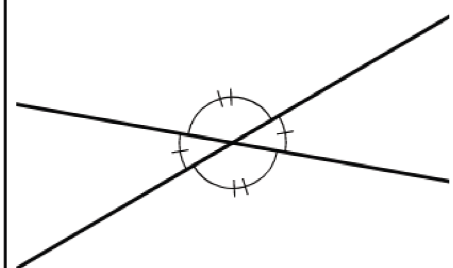
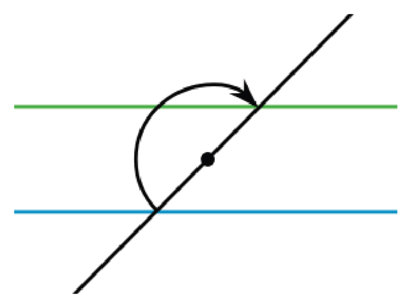
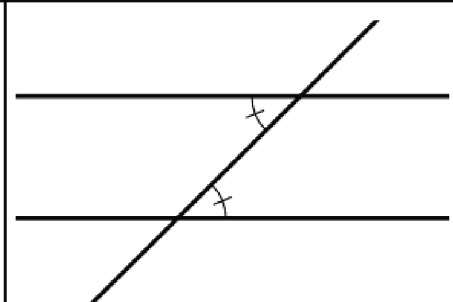
date, type	statement	diagram
definition	The ______________ of an acute angle in a ______________ triangle is the ratio (quotient) of the length of the ______________ leg to the length of the ______________ leg.	
definition	The ______________ of a number between _____ and _____ is the measure of an acute ______________ whose ______________ is that number.	
definition	The ______________ of a number between _____ and _____ is the measure of an acute ______________ whose ______________ is that number.	
definition	The ______________ of a positive number is the measure of an acute ______________ whose ______________ is that number.	
theorem	When any solid is ______________ using a ____________________________ of k, all lengths are multiplied by _____, all areas are multiplied by _____, and all volumes are multiplied by _____.	

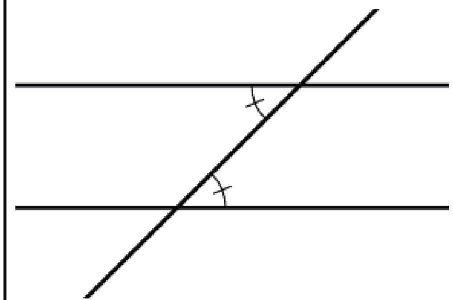
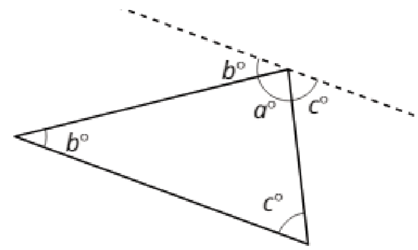
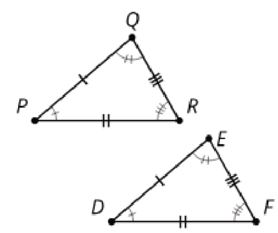
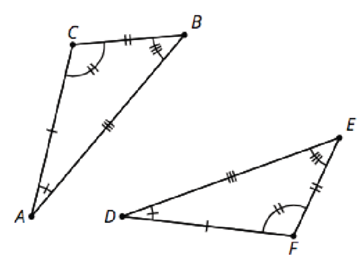
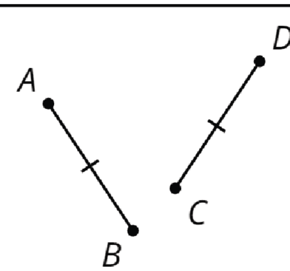
date, type	statement	diagram
theorem	**Cavalieri's Principle**: If two solids are cut into cross sections by ____________ planes, and the corresponding ________________________ on each plane always have ____________ areas, then the two solids have the same ____________.	
theorem	A ____________ or ____________ whose base has an area of ____ square units and whose ____________ is *h* units has volume of ____________ cubic units, regardless of the shape of the base or whether the solid is oblique.	
theorem	A ____________ or ____________ whose base has an area of ____ square units and whose ____________ is *h* units has volume ____________ cubic units, regardless of the shape of the base or whether the solid is oblique.	
definition	The ____________ of a substance is the ____________ of the substance per unit ____________ . That is, density = $\frac{\qquad}{\qquad}$	 density =
theorem	A ____________ with ____________ (h, k) and ____________ r has equation ________________________.	

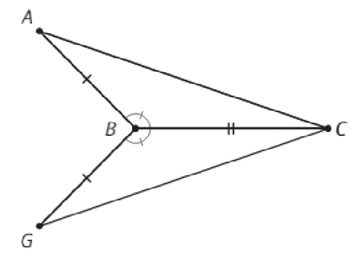
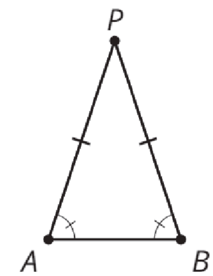
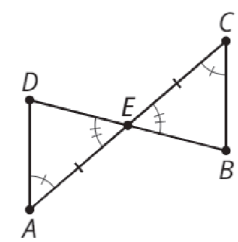
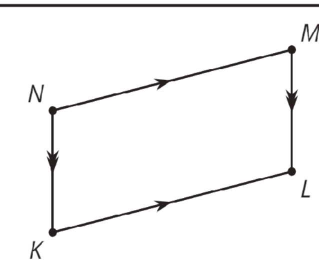
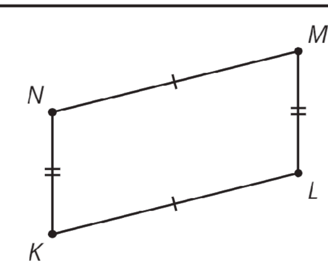
date, type	statement	diagram
definition	A ______________ is the set of ______________ that are equidistant from a given point, called the ______________, and a given line, called the ______________.	
definition	The ____________________________ form of the equation of a line is ____________________________ where (h, k) is a particular ______________ on the line and m is the ______________ of the line.	
theorem	Lines are ______________ if and only if they have ____________________________.	
theorem	Lines are ______________ if and only if their ______________ are ____________________________.	
assertion	______________ **Angle Theorem**: The measure of an ______________ angle is ______________ the measure of the ______________ angle that defines the same arc.	

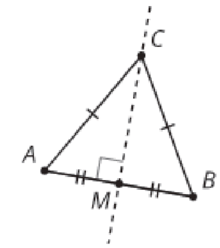
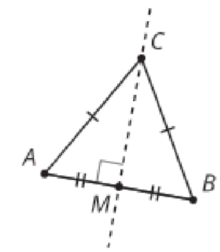
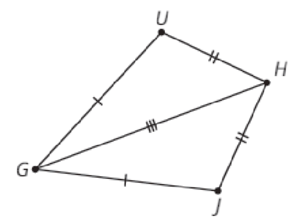
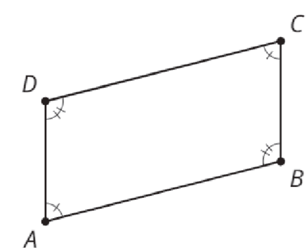
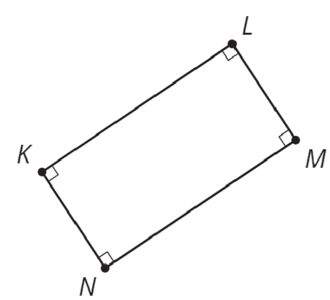
date, type	statement	diagram
theorem	A ______________ is ______________ to a ______________ if and only if it is ______________ to the radius drawn to the point of ______________.	
theorem	The three ____________________________ of the sides of a triangle meet at a single ______________, called the triangle's _________________. This point is the ______________ of the triangle's ____________________________.	
theorem	The three ____________________________ of a triangle meet at a single ______________, called the triangle's ______________. This point is the ______________ of the triangle's ____________________________.	
theorem	To calculate the ______________ of a ______________ or the ______________ of an ______________, first find the fraction of the circle represented by the central angle of the arc or sector. Multiply this ______________ by the circle's ______________ or ______________.	
definition	For any ______________, imagine drawing a ______________ with the angle's vertex at its ______________. Then, the "______________ measure of the angle" is the ratio of the length of the arc defined by the angle to the circle's radius. That is, ______________	

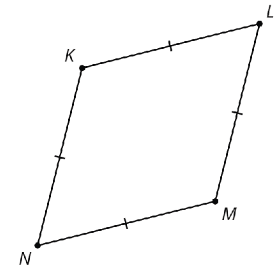
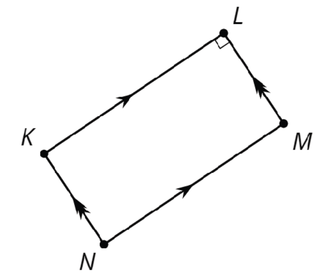
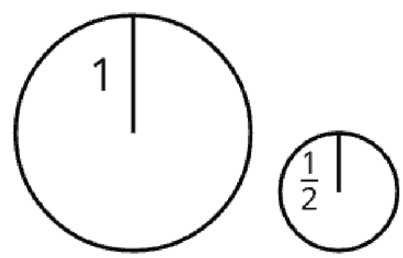
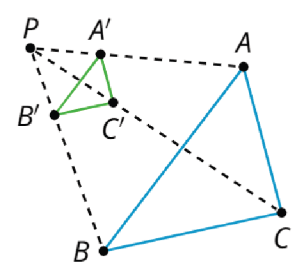
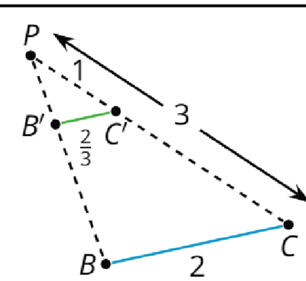
lesson, type	statement	diagram
U1, L10 (students write the date) assertion	A **rigid transformation** is a translation, reflection, rotation, or any sequence of the three. Rigid transformations take lines to lines, angles to angles of the same measure, and segments to segments of the same length.	
U1, L10 definition	Two figures are **congruent** if there is a sequence of translations, rotations, and reflections that takes one figure exactly onto the other. The second figure is called the image of the rigid transformation.	 $\triangle EDC \cong \triangle E'D'C'$
U1, L11 definition	**Reflection** is a rigid transformation that takes a point to another point that is the same distance from the given line, that 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 <u>(object)</u> across line <u>(name)</u>.”	 Reflect *A* across line *m*.
U1, L12 definition	**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 <u>(object)</u> by the directed line segment <u>(name or from [point] to [point])</u>.”	 Translate *A* by the directed line segment *v*.
U1, L12 assertion	**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*.	

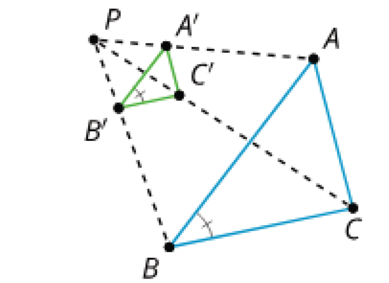
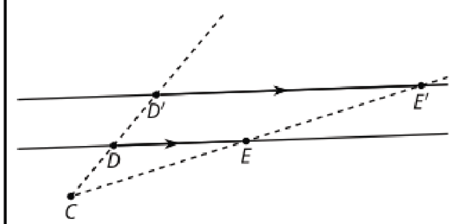
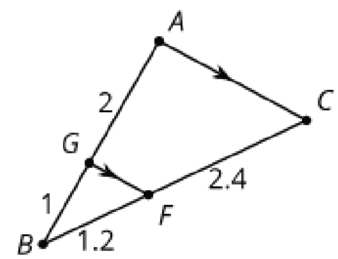
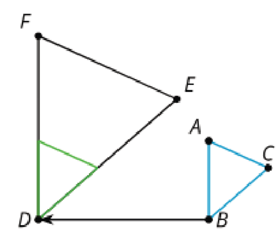
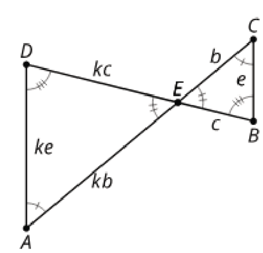
lesson, type	statement	diagram
U1, L12 theorem	Translations take lines to parallel lines or to themselves.	
U1, L14 definition	**Rotation** is a rigid transformation that takes a point to another point on the circle through the original point with the given center. The two radii, the one from the center to the original point and the one from the center to 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 theorem	Vertical angles are congruent.	
U1, L20 assertion	Rotation by 180 degrees takes lines to parallel lines or to themselves.	
U1, L20 theorem	**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.	

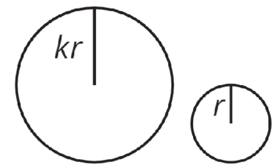
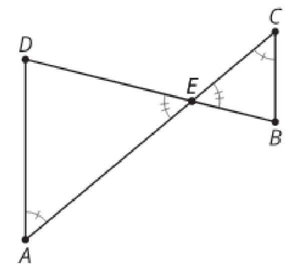
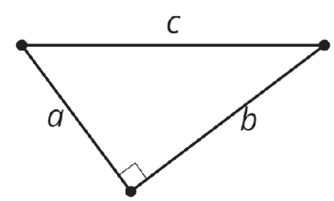
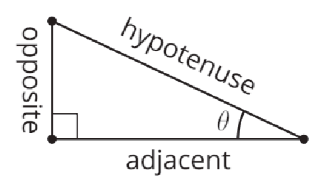
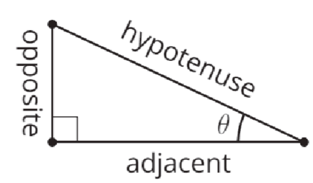
lesson, type	statement	diagram
U1, L20 theorem	**Corresponding Angle Theorem:** If two parallel lines are cut by a transversal, then corresponding angles are congruent. Conversely, if two lines are cut by a transversal and corresponding angles are congruent, then the lines have to be parallel.	
U1, L21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

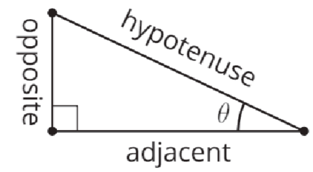
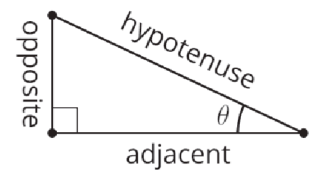
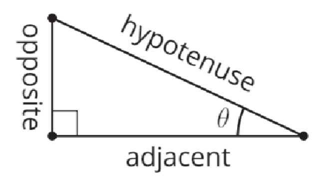
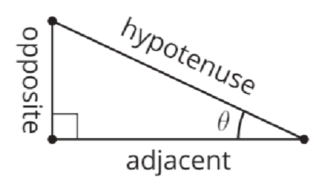
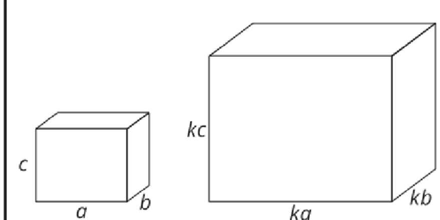
lesson, type	statement	diagram
U2, L6 theorem	**Side-Angle-Side Triangle Congruence Theorem:** In two triangles, if two pairs of congruent corresponding sides and the pair of corresponding angles between the sides are congruent, then the two triangles are congruent.	 $\overline{AB} \cong \overline{GB}$, $\overline{BC} \cong \overline{BC}$, $\angle ABC \cong \angle GBC$ so $\triangle ABC \cong \triangle GBC$
U2, L6 theorem	**Isosceles Triangle Theorem:** In an isosceles triangle, the base angles are congruent.	 $\overline{AP} \cong \overline{PB}$, so $\angle A \cong \angle B$
U2, L7 theorem	**Angle-Side-Angle Triangle Congruence Theorem:** In two triangles, if two pairs of corresponding angles are congruent and the pair of corresponding sides between the angles is congruent, then the triangles must be congruent.	 $\angle A \cong \angle C$, $\overline{AE} \cong \overline{EC}$, $\angle DEA \cong \angle BEC$, so $\triangle DEA \cong \triangle BEC$
U2, L7 definition	A **parallelogram** is a quadrilateral with two pairs of opposite sides parallel.	 $NM \parallel KL$, $NK \parallel ML$, so *MNKL* is a parallelogram
U2, L7 theorem	In a parallelogram, pairs of opposite sides are congruent.	 *MNKL* is a parallelogram, so $\overline{NM} \cong \overline{KL}$, $\overline{NK} \cong \overline{ML}$

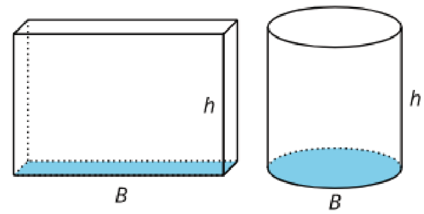
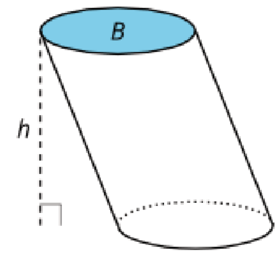
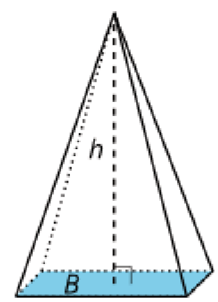
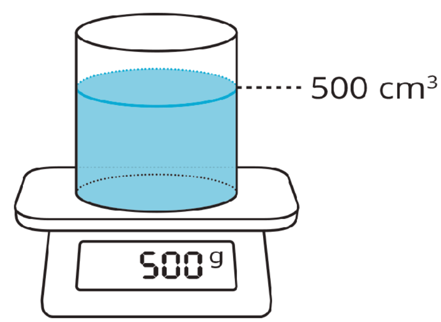
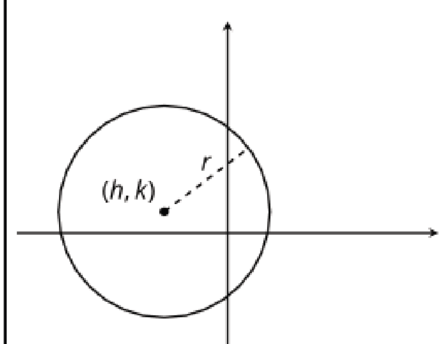
lesson, type	statement	diagram
U2, L8 theorem	If a point *C* is the same distance from *A* as it is from *B*, then *C* must be on the perpendicular bisector of *AB*.	 $\overline{AC} \cong \overline{BC}$, so *C* is on the line through midpoint *M* perpendicular to $\overline{AB}$.
U2, L8 theorem	If *C* 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*.	 $AB \perp CM$, $\overline{AM} \cong \overline{BM}$, so $\overline{AC} \cong \overline{BC}$
U2, L9 theorem	**Side-Side-Side Triangle Congruence Theorem:** In two triangles, if all three pairs of corresponding sides are congruent, then the triangles must be congruent.	 $\overline{HU} \cong \overline{HJ}$, $\overline{UG} \cong \overline{JG}$, $\overline{HG} \cong \overline{HG}$, so $\triangle HUG \cong \triangle HJG$
U2, L9 theorem	In a parallelogram, opposite angles are congruent.	 *ABCD* is a parallelogram, so $\angle A \cong \angle C$, $\angle D \cong \angle B$
U2, L12 definition	A **rectangle** is a quadrilateral with four right angles.	

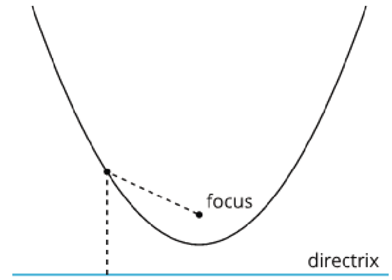
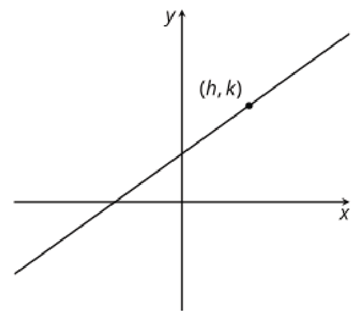
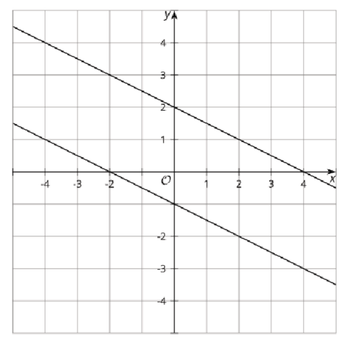
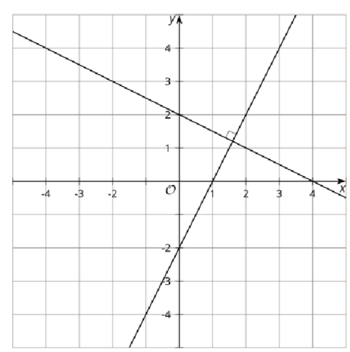
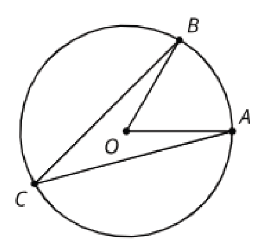
lesson, type	statement	diagram
U2, L12 definition	A **rhombus** is a quadrilateral with four congruent sides.	
U2, L12 theorem	If a parallelogram has (at least) one right angle, then it is a rectangle.	 *KLMN* has a right angle so it is a rectangle
U3, L1 definition	**Scale factor** is the factor by which every length in an original figure is multiplied when you make a scaled copy.	 Scale factor is 2 or ½
U3, L1 definition	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 farther away from P than A is. Dilate _(object)_ using center _(point)_ and a scale factor of _(number)_.	 $PA' = k \cdot PA$
U3, L3 assertion	The dilation of a line segment is longer or shorter according to the same ratio given by the scale factor.	 $PC{:}PC' = 3{:}1$, $BC{:}B'C' = 2{:}\frac{2}{3}$

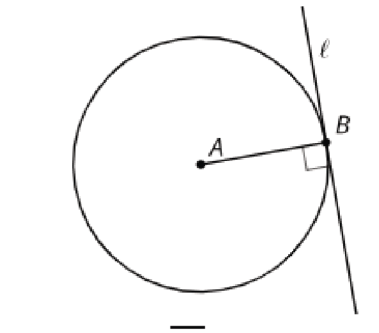
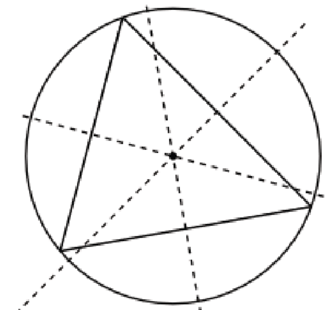
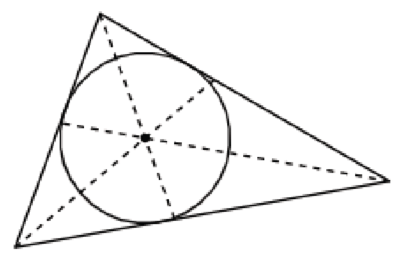
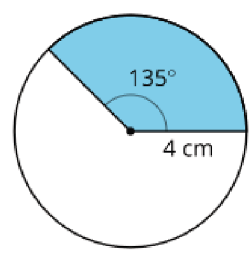
lesson, type	statement	diagram
U3, L4 assertion	If a figure is dilated, then corresponding angles are congruent.	 $\triangle A'B'C'$ is a dilation of $\triangle ABC$ so $\angle B \cong \angle B'$
U3, L4 theorem	A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	 Dilate using center C. $DE \parallel D'E'$
U3, L5 theorem	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 $AC \parallel GF$
U3, L6 definition	One figure is **similar** to another if there is a sequence of rigid motions and dilations that takes the first figure so that it fits exactly over the second.	 Translation and dilation takes $\triangle ABC$ onto $\triangle FDE$ so $\triangle ABC \sim \triangle FDE$
U3, L7 theorem	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.	 $\angle A \cong \angle C$, $\angle D \cong \angle B$, $\angle DEA \cong \angle BEC$, $\frac{AD}{CB} = \frac{DE}{BE} = \frac{EA}{EC}$ so $\triangle DEA \sim \triangle BEC$

lesson, type	statement	diagram
U3, L8 theorem	All circles are similar.	
U3, L9 theorem	**Angle-Angle Triangle Similarity Theorem:** In two triangles, if two pairs of corresponding angles are congruent, then the triangles must be similar.	 $\angle A \cong \angle C$, $\angle DEA \cong \angle BEC$, so $\triangle DEA \sim \triangle BEC$
U3, L14 theorem	**Pythagorean Theorem:** If a right triangle has legs with lengths a and b and hypotenuse with length c, then $a^2 + b^2 = c^2$.	 $a^2 + b^2 = c^2$
U4, L6 definition	The **cosine** of an acute angle in a right triangle is the ratio (quotient) of the length of the adjacent leg to the length of the hypotenuse.	 $\cos(\theta) = \frac{\text{adjacent}}{\text{hypotenuse}}$
U4, L6 definition	The **sine** of an acute angle in a right triangle is the ratio (quotient) of the length of the opposite leg to the length of the hypotenuse.	 $\sin(\theta) = \frac{\text{opposite}}{\text{hypotenuse}}$

lesson, type	statement	diagram
U4, L6 definition	The **tangent** of an acute angle in a right triangle is the ratio (quotient) of the length of the opposite leg to the length of the adjacent leg.	 $\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$
U4, L10 definition	The **arccosine** of a number between 0 and 1 is the measure of an acute angle whose cosine is that number.	 $\arccos\left(\frac{\text{adjacent}}{\text{hypotenuse}}\right) = \theta$
U4, L10 definition	The **arcsine** of a number between 0 and 1 is the measure of an acute angle whose sine is that number.	 $\arcsin\left(\frac{\text{opposite}}{\text{hypotenuse}}\right) = \theta$
U4, L10 definition	The **arctangent** of a positive number is the measure of an acute angle whose tangent is that number.	 $\arctan\left(\frac{\text{opposite}}{\text{adjacent}}\right) = \theta$
U5, L6 theorem	When any solid is dilated using a scale factor of k, all lengths are multiplied by k, all areas are multiplied by k^2, and all volumes are multiplied by k^3.	

lesson, type	statement	diagram
U5, L10 theorem	**Cavalieri's Principle**: If two solids are cut into cross sections by parallel planes, and the corresponding cross sections on each plane always have equal areas, then the two solids have the same volume.	
U5, L10 theorem	A prism or cylinder whose base has an area of B square units and whose height is h units has volume of Bh cubic units, regardless of the shape of the base or whether the solid is oblique.	
U5, L13 theorem	A pyramid or cone whose base has an area of B square units and whose height is h units has volume $\frac{1}{3}Bh$ cubic units, regardless of the shape of the base or whether the solid is oblique.	
U5, L17 definition	The **density** of a substance is the mass of the substance per unit volume. That is, $\text{density} = \frac{\text{mass}}{\text{volume}}$.	 density = 1 g per cm^3
U6, L4 theorem	A circle with center (h, k) and radius r has equation $(x - h)^2 + (y - k)^2 = r^2$.	

lesson, type	statement	diagram
U6, L7 definition	A **parabola** is the set of points that are equidistant from a given point, called the **focus**, and a given line, called the **directrix**.	
U6, L9 definitio n	The **point-slope form** of the equation of a line is $y - k = m(x - h)$ where (h, k) is a particular point on the line and m is the slope of the line.	
U6, L10 theorem	Lines are parallel if and only if they have equal slopes.	
U6, L11 theorem	Lines are perpendicular if and only if their slopes are opposite reciprocals.	
U7, L2 assertion	**Inscribed Angle Theorem:** The measure of an inscribed angle is half the measure of the central angle that defines the same arc.	 $m\angle BCA = \frac{1}{2} m\angle BOA$

lesson, type	statement	diagram
U7, L3 theorem	A line is tangent to a circle if and only if it is perpendicular to the radius drawn to the point of tangency.	 $\overline{AB} \perp \ell$
U7, L5 theorem	The three perpendicular bisectors of the sides of a triangle meet at a single point, called the triangle's **circumcenter**. This point is the center of the triangle's circumscribed circle.	
U7, L7 theorem	The three angle bisectors of a triangle meet at a single point, called the triangle's **incenter**. This point is the center of the triangle's inscribed circle.	
U7, L8 theorem	To calculate the area of a sector or the length of an arc, first find the fraction of the circle represented by the central angle of the arc or sector. Multiply this fraction by the circle's area or circumference.	 arc length: 3π cm sector area: 6π cm^2
U7, L11 definition	For any angle, imagine drawing a circle with the angle's vertex at its center. Then, the "**radian** measure of the angle" is the ratio of the length of the arc defined by the angle to the circle's radius. That is, $\theta = \frac{arc\ length}{radius}$.