

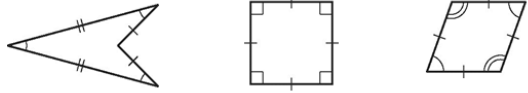
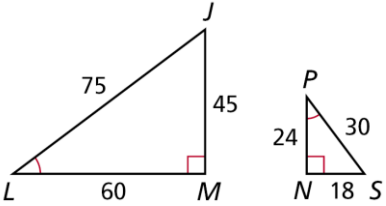
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2nd Semester Final Exam Study Guide

My Notes

2nd Semester Final Exam Study Guide

CHAPTER 7: SIMILARITY

What I Need to Know	Example																								
6.1 Properties of Polygons																									
Classify polygons based on their angles and sides.	<table border="1"> <thead> <tr> <th>Number of Sides</th> <th>Name of Polygon</th> </tr> </thead> <tbody> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>5</td><td></td></tr> <tr><td>6</td><td></td></tr> <tr><td>7</td><td></td></tr> <tr><td>8</td><td></td></tr> <tr><td>9</td><td></td></tr> <tr><td>10</td><td></td></tr> <tr><td>12</td><td></td></tr> <tr><td>15</td><td></td></tr> <tr><td>n</td><td></td></tr> </tbody> </table>	Number of Sides	Name of Polygon	3		4		5		6		7		8		9		10		12		15		n	
Number of Sides	Name of Polygon																								
3																									
4																									
5																									
6																									
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n																									
Determine if the polygon is regular, irregular, concave, or convex.																									
Calculate the sum of the interior angles of a polygon.	Find the sum of the interior angles of a regular convex 15-gon.																								
Calculate the sum of the exterior angles of a polygon.	Find one exterior angles of a regular convex 15-gon																								
What I Need to Know	Example																								
7.1 Ratios in Similar Polygons																									
Determine if polygons are similar and write a similarity statement.	Determine if polygons are similar and write a similarity statement. 																								

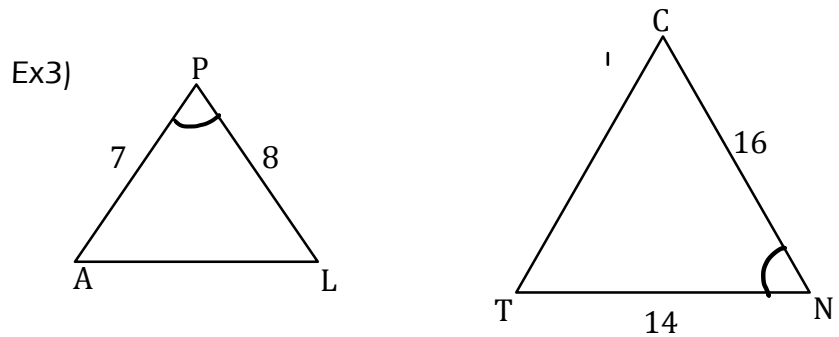
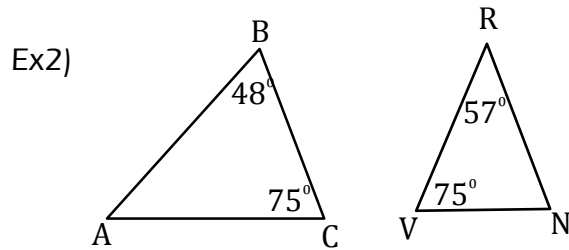
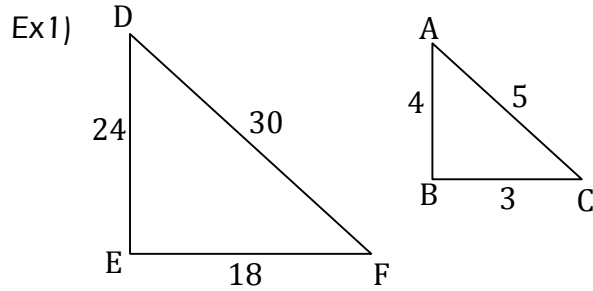
What I Need to Know

Example

7.3 Triangle Similarity AA~, SSS~, SAS~

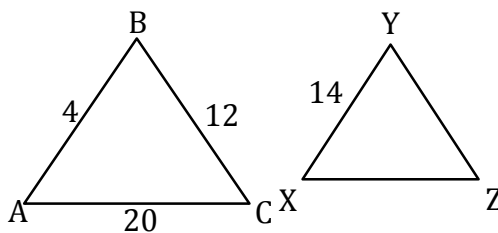
Identify the postulate used to show triangles are similar.

Determine if the polygons are similar. If so, state the theorem and similarity statement.



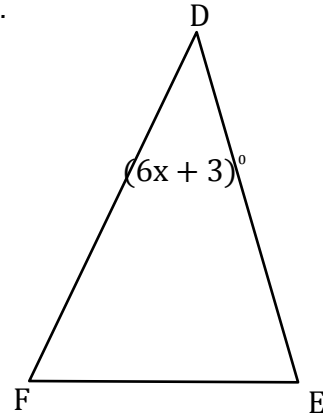
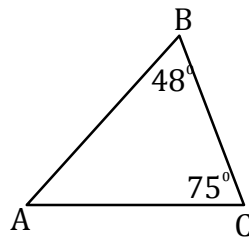
Find the side lengths of similar triangles.

$\triangle ABC \sim \triangle XYZ$. Find XZ.



Find the missing angle of similar triangles.

$\triangle ABC \sim \triangle DEF$. Solve for x .



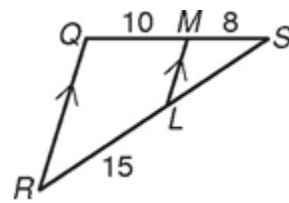
What I Need to Know

Example

7.4 Applying Properties of Similar Triangles

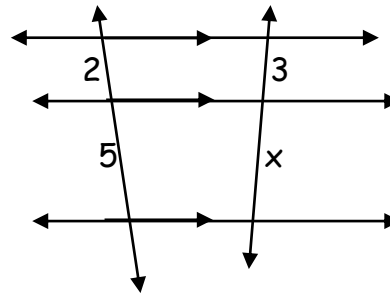
Use the Triangle Proportionality Theorem to solve for missing segments.

Solve for side LS.



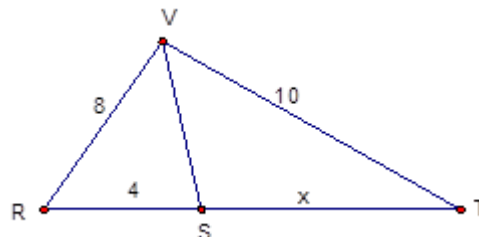
Use the Two Transversal Proportionality Corollary to find missing segments.

Find x .

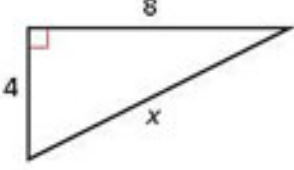
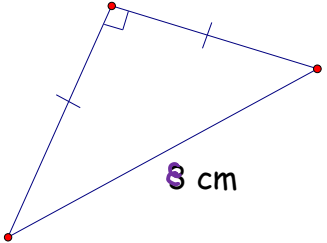
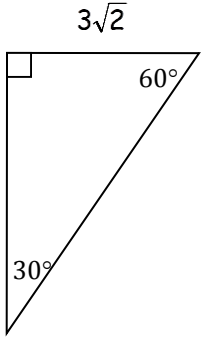


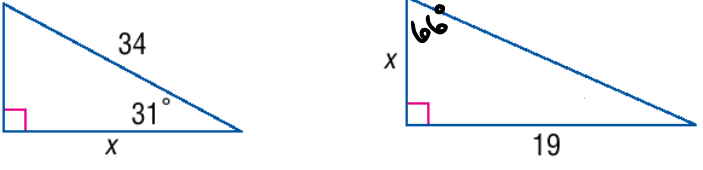
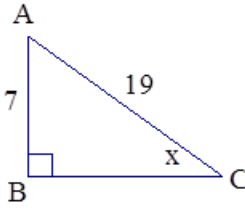
Use the Angle Bisector Theorem to find lengths of segments

Given $\angle RVS \cong \angle SVT$, find ST

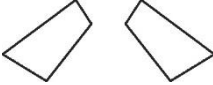

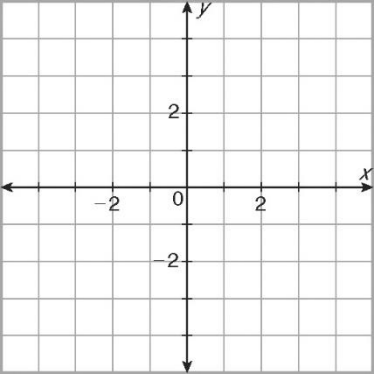
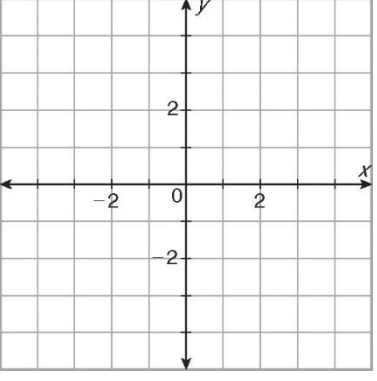



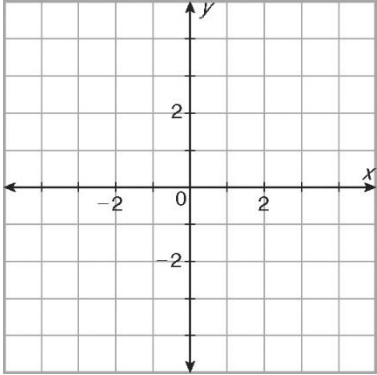

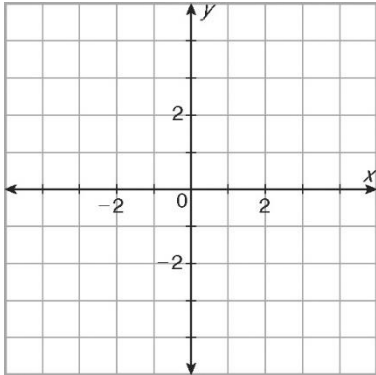
CHAPTER 8: RIGHT TRIANGLES

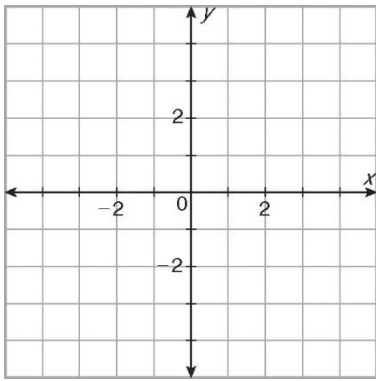
What I Need to Know	Example
5.7 Pythagorean Theorem	
<p>Identify and use the Pythagorean Triples to solve triangles.</p>	<p>Find the value of x.</p> 
<p>Use the Pythagorean Inequality Theorem to classify triangles.</p>	<p>Tell if the measures can be side lengths of a right triangle. If so, classify the triangle as acute, obtuse, or right.</p> <p>7, 10, and 12</p>
What I Need to Know	Example
5.8 Special Right Triangles	
<p>Find side lengths of a $45^\circ-45^\circ-90^\circ$ triangle.</p>	<p>Find the missing side lengths.</p> 
<p>Find side lengths of a $30^\circ-60^\circ-90^\circ$ triangle.</p>	<p>Find the missing side lengths.</p> 

What I Need to Know	Example
8.2 Trigonometric Ratios	
General Rules for Trig	
Use trig ratios to find side lengths of a right triangle.	<p>Find x.</p> 
What I Need to Know	Example
8.3 Solve Right Triangles	
Use a calculator to find an angle measure, given a trigonometric ratio.	<p>Find x.</p> 
What I Need to Know	Example
8.4 Angle of Elevation & Depression	
Solve real world problems using trigonometry.	<p>The Seattle Space Needle casts a 67-meter shadow. If the angle of elevation from the tip of the shadow to the top of the Space Needle is 70°, how tall is the Space Needle? Round to the nearest meter.</p>

CHAPTER 9: TRANSFORMATIONS

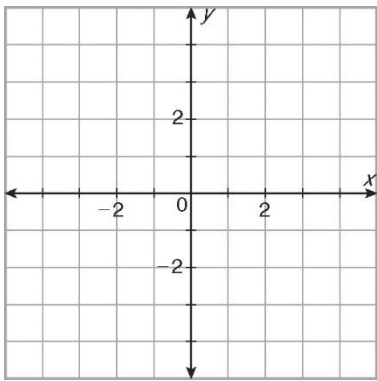
What I Need to Know	Example
9.1 Reflections	
<p style="text-align: center;">Identify a Reflection</p>	<p>Is it a reflection? If so, draw the line of reflection.</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;">   </div>
<p style="text-align: center;">Reflect a figure over the y-axis and x-axis.</p>	<p>Reflect the points P (1, 5), Q (3, 0), R (2, -2) over the y-axis.</p> <div style="text-align: center; margin-top: 10px;">  </div>
<p style="text-align: center;">Reflect a figure over $y=x$</p>	<p>Reflect the points P (1, 5), Q (3, 0), R (2, -2) over $y=x$.</p> <div style="text-align: center; margin-top: 10px;">  </div>

What I Need to Know	Example
9.2 Translations	
Identify a translation	<p>Is it a translation?</p> 
Translate a figure along a vector.	<p>Translate the points P (1, 5), Q (3, 0), R (2, -2) along the vector $\langle -3, 0 \rangle$</p> 
What I Need to Know	Example
9.3 Rotations	
Identify a rotation	
Rotate a figure 90° about the origin.	<p>Rotate the points P (1, 5), Q (3, 0), R (2, -2) 90° about the origin.</p> 

<p>Rotate a figure 180° about the origin.</p>	<p>Rotate the points P (1, 5), Q (3, 0), R (2, -2) 180° about the origin.</p> 
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<p>What I Need to Know</p>	<p>Example</p>
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9.4 Composition of Transformations

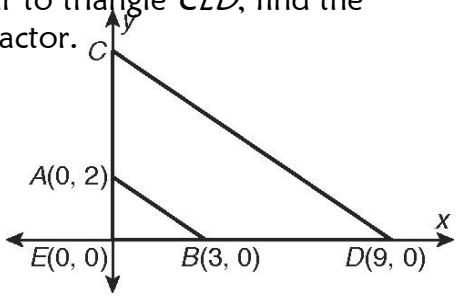
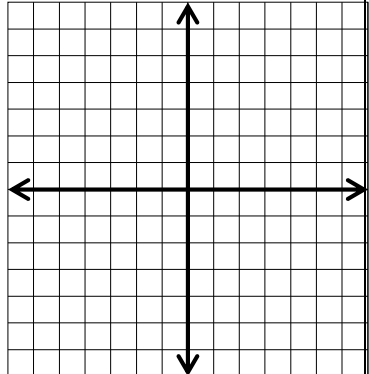
<p>Draw the result of a composition of transformations.</p>	<p>Point P(1, 5) was mapped to point P''(3, -2) first by a reflection over the y-axis and then by what translation vector?</p> 
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<p>What I Need to Know</p>	<p>Example</p>
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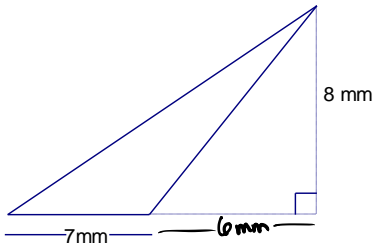
9.5 Symmetry

<p>Identify if a figure has line symmetry.</p>	
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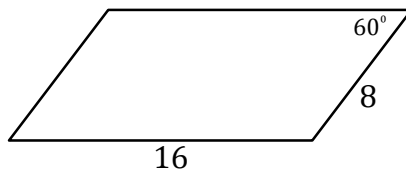
<p>Identify if a figure has rotational symmetry. If so, give the angle of rotational symmetry and the order of symmetry.</p>	
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What I Need to Know	Example
7.6 Dilations	
<p>Find the scale factor and coordinates of similar triangles.</p>	<p>Given that triangle AEB is similar to triangle CED, find the coordinates of C and the scale factor.</p> 
<p>Dilate a triangle in the coordinate plane with a given scale factor.</p>	<p>Triangle EFG has vertices $E(0, 0)$, $F(3, 6)$, and $G(3, -3)$. Find the coordinates of the image, after a dilation with a scale factor $\frac{1}{3}$. How does this differ from having a scale factor of 3?</p> 

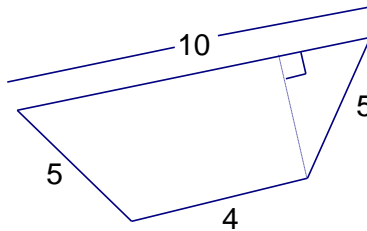
CHAPTER 10: PERIMETER & AREA

What I Need to Know	Example
10.1 Area of a Triangle, Parallelogram, Trapezoid, Rhombus, and Kite	
<p>Find the area of a triangle.</p>	

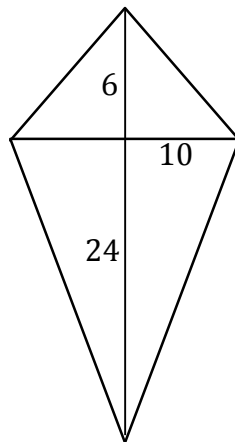
Find the area of a parallelogram.



Find the area of a trapezoid.

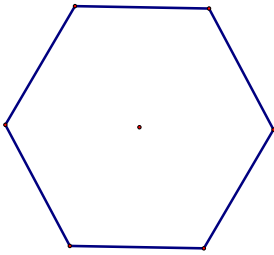
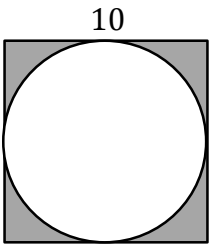


Find the area of a kite.

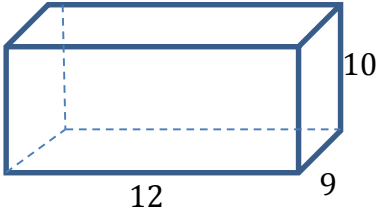
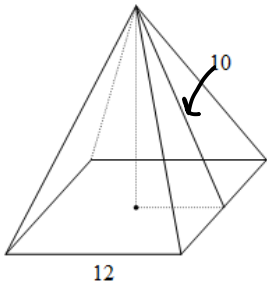
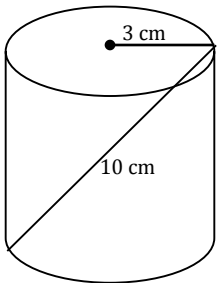
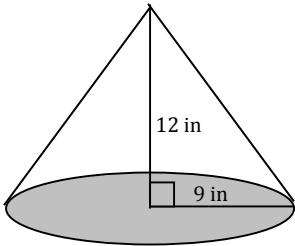


Find the area of a rhombus.

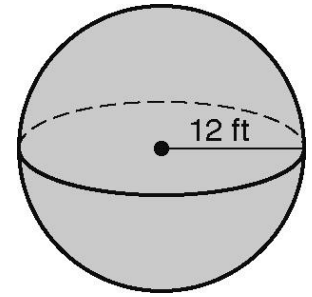
Find the area of a rhombus that has a perimeter of 100 and longer diagonal of 48.

What I Need to Know	Example
10.2 Area of Regular Polygons and Circles	
<p>Find the area of a regular polygon.</p>	<p>Find the area of the regular hexagon with a side length of 12.</p> 
10.3 Area of Composite Figures	
<p>Find the area of composite figures.</p>	<p>Find the area of the shaded region.</p> 

CHAPTER 11: SURFACE AREA & VOLUME

What I Need to Know	Example
Surface Area of Prisms, Pyramids, Cylinders, Cones, and Spheres	
Find the lateral and total surface area of a prism.	Find the total surface area. 
Find the lateral and total surface area of a pyramid.	Find the total surface area of the regular pyramid. 
Find the lateral and total surface area of a cylinder.	
Find the lateral and total surface area of a cone.	

Find the surface area of a sphere.

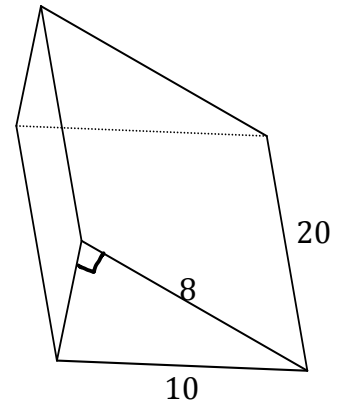


What I Need to Know

Example

Volume of Prisms, Pyramids, Cylinders, and Cones

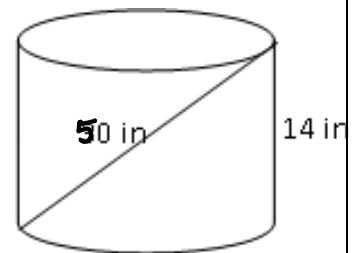
Find the volume of a prism.



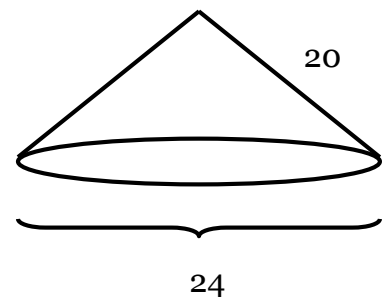
Find the volume of a pyramid.

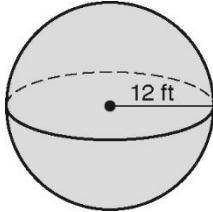
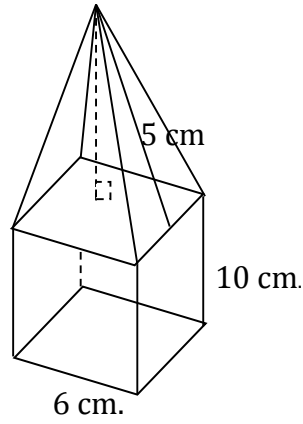
A rectangular pyramid with length 11 m, width 18m, and height 23 m.

Find the volume of a cylinder.

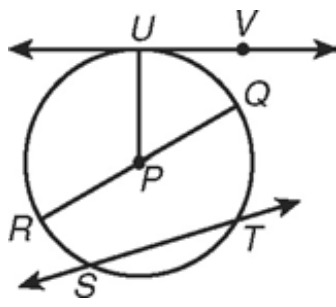


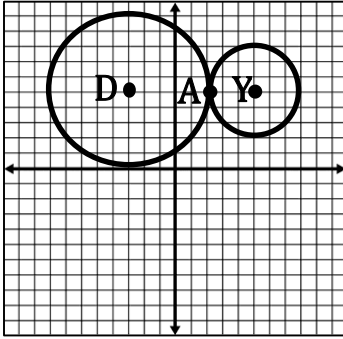
Find the volume of a cone.

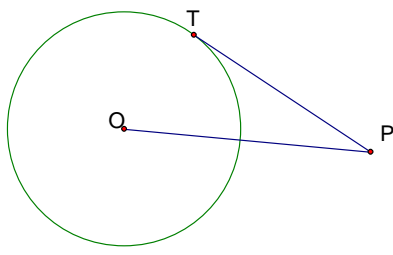


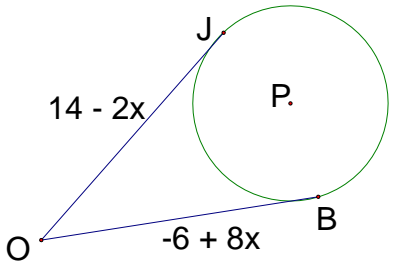
Find the volume of a sphere.	
What I Need to Know	Example
Volume of a Composite Figure	
Find the volume of composite figure.	<p>Base is regular.</p> 

CHAPTER 12: CIRCLES

What I Need to Know	Example
12.1 Lines that Intersect Circles	
Basic Vocab	<p>Name the following:</p> <p>Circle: _____</p> <p>Radius: _____</p> <p>Diameter: _____</p> <p>Chord: _____</p> <p>Secant: _____</p> <p>Tangent: _____</p> <p>Point of Tangency: ____</p> 

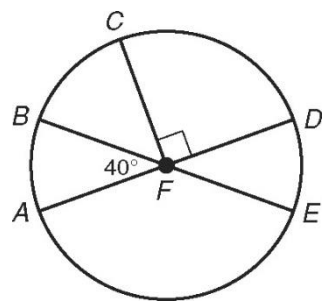
Write equation of tangent lines		Radius of $\odot D$ Radius of $\odot Y$ Point of Tangency Equation of Tangent Line
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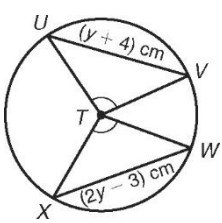
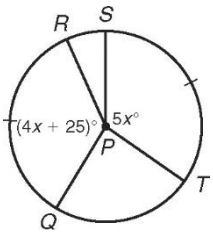
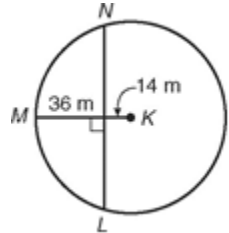
Tangent-Radius Relationship	<p>\overline{TP} is tangent to $\odot O$. If $TP = 24$ and the radius of the circle is 18, find the measure of OP.</p> 
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Tangent – Tangent Relationship	<p>\overline{JO} and \overline{OB} are tangent to $\odot O$. Find the measure of OJ.</p> 
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What I Need to Know	Example
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12.2 Arcs and Chords

Arcs and their Measures Given $\odot D$, name the following: Minor arc: _____ Major arc: _____ Semi-circle: _____ Find the measure of the following: arc BC _____ arc ADC _____ arc DFE _____	
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<p style="text-align: center;">Congruent Central Angles</p> <p style="text-align: center;">↕</p> <p style="text-align: center;">Congruent Arcs</p> <p style="text-align: center;">↕</p> <p style="text-align: center;">Congruent Chords</p>	<p>$\angle UTV \cong \angle XTW$. Find WX</p>  <p>$m\widehat{OR} = m\widehat{ST}$. Find $m\angle OPR$</p> 
<p>Chord – Radius/Diameter Relationship</p>	<p>Given $\square K$, find LN.</p> 
<p>What I Need to Know</p>	<p>Example</p>
<p style="text-align: center;">12.3 Sector Area and Arc Length</p>	
<p>Arc Length of a Circle</p>	<p>Find the arc length of a circle that has a measure of 30° and a diameter of 10 cm.</p>
<p>Sector of a Circle</p>	<p>Find the area of the sector of a circle that has a measure of 30° and a diameter of 10 cm.</p>

What I Need to Know	Example
12.4 Inscribed Angles and 12.5 Angle Relationships in Circles	
Angles that are ON the circle	
Angles that are INSIDE the circle	
What I Need to Know	Example
12.7 Circles in the Coordinate Plane	
General Equation of a Circle	<p>1) Write the equation of a circle that has a center at (3, -4) and a radius of 5.</p> <p>2) What is the center and radius of a circle that has an equation of $(x + 16)^2 + (y - 11)^2 = 300$.</p>