

Lesson Plan Template

Grade: 8 (Day 1)		Subject: Geometry	
Materials: Projector, computer, pencil, notes sheet		Technology Needed: Projector, computer,	
Instructional Strategies: <input type="checkbox"/> Direct instruction <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list)		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Independent activity <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:	
Standard(s) 8.G.1 Understand the properties of rotations, reflections, and translations by experimentation: a. Lines are transformed onto lines, and line segments onto line segments of the same length. b. Angles are transformed onto angles of the same measure. c. Parallel lines are transformed onto parallel lines. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations. Given two congruent figures, describe a sequence of transformations that exhibits the congruence between them.		Differentiation Below Proficiency: Students with below proficiency will be able to ask questions during their independent work time. I will go around and make sure they are on track and understand the content and give extra help when needed. Above Proficiency: Students will work on their own through the practice problems. If they have questions they may ask. Approaching/Emerging Proficiency: Students will work on their own though the practice problems. If they have questions they may ask. Modalities/Learning Preferences: Visual, hands on	
Objective(s) Students can define what translations, rotations, and reflections are. Students can demonstrate translations, rotations, and reflections on a graph. Students can apply translations, rotations, and reflections of shapes.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students know the appropriate behavior. They do not talk when the teacher is talking. They will work on the example problems quietly.	
Bloom's Taxonomy Cognitive Level: Explain, show, manipulate.			
Classroom Management- (grouping(s), movement/transitions, etc.) Students will remain at their desks for the whole day as they listen to the lesson and do work on their own.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students know the appropriate behavior. They do not talk when the teacher is talking. They will work on the example problems quietly.	
Minutes			
0	Procedures Set-up/Prep: Note sheet is already prepared.		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) https://www.youtube.com/watch?v=543v9XltkAQ We will watch this video not related to math as an opening activity.		
25	Explain: (concepts, procedures, vocabulary, etc.) We will follow the notes sheet and I will project it onto the white board. Today we are going to be talking about transformations. The objectives for today are Students can define what translations, rotations, and reflections are. Students can demonstrate translations, rotations, and reflections on a graph. Students can apply translations, rotations, and reflections of shapes. At the end of todays lesson, you will be able to demonstrate these skills. First the word transformation means to chance. There are some definitions we will need to know for today. First when we move the image without changing shape, size, or orientation it is called a translation. We can look at the image on the top left. The rectangle is translated into a different spot. It does not change its shape or size, but it is moved into a different place. Rotation is when we rotate an image by some degree. The image in the top right shows us a rotation. The rectangle in being rotated at the center, which is this point right here and it was rotated 90 degrees. Next when we flip an image along a line (like a mirror) it is called a reflection. When we look at the bottom picture the lone right here is our mirror and the triangle is being reflected over it. Let's look at examples. Example one is asking us to rotate the rectangle 90 degrees clockwise at the labeled center which is the origin, where the x and y axis meet. The center will stay in the same position, and we will rotate around the center. This is what the rectangle will look like when we rotate it 90 degrees.		

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	<p>Now you try and do this next example, rotate the triangle counterclockwise 90 degrees. Notice that the same and size of the triangle does not change. We are just rotating it at the given center.</p> <p>Example three is asking us to reflect the pentagon over the y-axis. We want to show the reflection. Let's look at one point on the pentagon first. We see that it is two points away from the axis. So, we will put a point two points away from the axis on the other side. We will do that until we have enough points to make our pentagon.</p> <p>You try and do this next one. You see that one of the points is one away from the axis and another is two and this is how it reflects. So now we will look at some translation. It is asking us to translate the square up 4 and to the right 5. Let's straight at one of the corners. We will go up 4 and to the right 5. We will do that with all the corners and the end results looks like this. Try this next example on your own.</p>
15	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <p>These next four problems I want you to work on them on your own and see if you can get to the right transformations. If you have any questions, please ask and I'll be walking around to make sure you understand.</p>
5	<p>Review (wrap up and transition to next activity):</p> <p>Tomorrow we will be going an online activity related to transformations. Have a great day!</p>
<p>Formative Assessment: (linked to objectives)</p> <p>Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc.</p> <p>Consideration for Back-up Plan:</p> <p>Workday</p>	<p>Summative Assessment (linked back to objectives)</p> <p>End of lesson: Quiz and test</p> <p>If applicable- overall unit, chapter, concept, etc.:</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p>	

Lesson Plan Template

Grade:8 (Day 2)		Subject: Geometry	
Materials: Projector, Computer, Pencil, paper		Technology Needed: Computers	
Instructional Strategies: <input checked="" type="checkbox"/> Direct instruction <input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input type="checkbox"/> Guided practice <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> PBL <input type="checkbox"/> Learning Centers <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Modeling <input checked="" type="checkbox"/> Technology integration <input type="checkbox"/> Other (list)		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Hands-on <input type="checkbox"/> Independent activity <input checked="" type="checkbox"/> Technology integration <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Imitation/Repeat/Mimic <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:	
Standard(s) 8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. 8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. Given two similar two-dimensional figures, describe a sequence of transformations that exhibits the similarity between them.		Differentiation Below Proficiency: Students can ask questions when needed. If I see them struggling, I will pull them aside for more instruction. Above Proficiency: Will be on their own. They may ask questions when needed. Approaching/Emerging Proficiency: Will be on their own. They may ask questions if needed. Modalities/Learning Preferences: Visual, hands on	
Objective(s) Students can describe the effects of dilation, transformations, rotations, and reflections. Students can modify two-dimensional images given certain dilations, translations, reflections, and rotations.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students know the appropriate behavior. They do not talk when the teacher is talking. They will work on the example problems quietly.	
Bloom's Taxonomy Cognitive Level: Explain, show, manipulate.			
Classroom Management- (grouping(s), movement/transitions, etc.) Students will remain at their desks for the whole day as they listen to the lesson and do work on their own.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students know the appropriate behavior. They do not talk when the teacher is talking. They will work on the example problems quietly.	
Minutes Procedures			
0	Set-up/Prep: Have a computer cart checked out.		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Yesterday we talked about transformations. Let's go over the examples I had you do on your own.		
15	Explain: (concepts, procedures, vocabulary, etc.) So yesterday we talked about transformations. We have translations, reflections, and rotations. We need to introduce a new transformation which is dilation. Today's objectives are Students can describe the effects of dilation, transformations, rotations, and reflections. Students can modify two-dimensional images given certain dilations, translations, reflections, and rotations. Dilation is the type of transformations that changes the size of the image. The scale factor measures how large or small the image is. In these two images the first one shows a scale factor of 2 and the bottom image shows a scale factor of ½. Let's look at example one we want to dilate the square by a scale factor of 2. Let's label the points of the red square. Now we can come up with our points for our dilation square by multiplying the coordinates by 2 since that is our scale factor is two. This gives us these points and now we can graph it. Example two wants is to dilate the triangle with a scale factor of ½ we will do the same thing as the first one but inside we will divide by two or multiple by ½. Now I want to go over transformations with the use of vectors. Example 1 is asking us to move A by a vector of $\begin{pmatrix} 2 \\ -3 \end{pmatrix}$. First, we need to move is 2 units in the positive direction of the x-axis and then we want to move is 3 units in the negative direction of the y-axis. Our new position should look like this. You should have enough information to complete the activity.		
25	Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) https://www.transum.org/software/SW/Starter_of_the_day/Students/Transformations/Draw.asp?Level=2		

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	<p>Explore the transformation website. I want you to complete each level before continuing onto the next one. There are different levels that vary in difficulty. If you have questions, please ask. If you come across something that you do not know or understand I want, you to look up the information and s=try to problem solve on your own. If you are really stuck, I will help answer questions.</p>	
5	<p>Review (wrap up and transition to next activity): Tomorrow we are going to get into talking about angles and angle sums.</p>	
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc. I will be walking around to see if anyone needs help and are staying on task. If I see students not progressing at a good pace I will sit down and help them.</p> <p>Consideration for Back-up Plan: Work time</p>	<p>Summative Assessment (linked back to objectives) End of lesson: quiz, unit test.</p> <p>If applicable- overall unit, chapter, concept, etc.:</p>	
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p>		

Lesson Plan Template

Grade: 8 Day 3		Subject: Geometry	
Materials: White Board, pencil, paper		Technology Needed: Power point, computer	
Instructional Strategies: <input type="checkbox"/> Direct instruction <input type="checkbox"/> Peer teaching/collaboration/ <input type="checkbox"/> Guided practice cooperative learning <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> Learning Centers <input type="checkbox"/> PBL <input type="checkbox"/> Lecture <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Technology integration <input type="checkbox"/> Modeling <input type="checkbox"/> Other (list)		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Hands-on <input type="checkbox"/> Independent activity <input type="checkbox"/> Technology integration <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Imitation/Repeat/Mimic <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:	
Standard(s) 8.G.5 Use informal arguments to establish facts about: a. the angle sum and exterior angles of triangles b. the angles created when parallel lines are cut by a transversal c. the angle-angle criterion for similarity of triangles		Differentiation Below Proficiency: When it is work time, I will go around and help those who need extra help on understanding the content. Above Proficiency: Will work on their own and may ask questions when needed Approaching/Emerging Proficiency: Will work quietly on their own and may ask questions when needed. Modalities/Learning Preferences: Visual, hands on	
Objective(s) Students can solve missing triangle angle measurements. Students can evaluate angle measurement of a transversal line cutting two parallel lines. Students can identify similar triangles.			
Bloom's Taxonomy Cognitive Level: Explain, show, manipulate.			
Classroom Management- (grouping(s), movement/transitions, etc.) Students will work quietly when it is worktime.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students know to be quiet when teacher is talking and work at a quiet level.	
Minutes	Procedures		
0	Set-up/Prep: Worksheet is made.		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) We will go over the website they worked on yesterday. I will get feed back on as if it was helpful and go over a harder problem on it.		
25	Explain: (concepts, procedures, vocabulary, etc.) Today we are going to be talking about angle sum, exterior angles, transversals, and angle-angle congruence. The objectives today are I can solve missing triangle angle measurements. I can evaluate angle measurement of a transversal line cutting two parallel lines and I can identify similar triangles. So, first angle sum is the sum of all interior angles on a triangle is 180 degrees. So, angle A + angle B + angle C all add up to 180 degrees. This so for all triangles. We can use this formal to plug in numbers to find missing angle measurements. Nest exterior angle theorem states that the measure of an exterior angle is equal to the sum of the measures of the two remote interior angles of a triangle. We see in this triangle that angle 1 + angle 2 gives us the exterior angle 4. We can use this formula to find missing angle measurements. A line that cuts two parallel lines is called a transversal. When we look at this bottom picture you can see congruent angles it gives us here. We will come back to this picture for example problems. Angle-angle similarity theorem states that if two angles in one triangle are equal to two angles in another triangle, then the triangles are similar. In this picture we know A is equal to Y and B is equal to Z so C and X have to be equal making the triangle similar. Let's look at example 1. It is asking us to find the measure of angle B. We can use the angle sum theorem to find the missing angle. We know that all the angles must equal 180 degrees. We can set it up like this and solve for B. You can see it gives us 40 degrees for angle B. You try example 2 on your own. You should get 49 degrees for angle D. We know that angle G is 90 degrees and O is 41 degrees. Example 3 is asking us to find the exterior angle measure at x. We can go back and use the formula we were given, and we know we can add the other angles together to give us 140 degrees for the exterior angle. You try example 4. You should get 100 degrees. Example 5 wants us to find the angle measures for x and y. Lets go back to our transversal picture. We can see which angles are congruent. This gives us angle x equaling to 130 degrees and angle y equaling to 130 degrees.		

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15	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) Now I want you to work on these next 6 problems by yourself. If you have any questions I will be walking around so please ask.</p>	
5	<p>Review (wrap up and transition to next activity): Tomorrow we will have a quiz but we will review a little beforehand.</p>	
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc. Will walk around the room to make sure they are staying on task and help to see if students are struggling.</p> <p>Consideration for Back-up Plan: Worktime</p>	<p>Summative Assessment (linked back to objectives) End of lesson: Quiz, unit test</p> <p>If applicable- overall unit, chapter, concept, etc.:</p>	
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p>		

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Day 4 -Quiz Unit 5 quiz

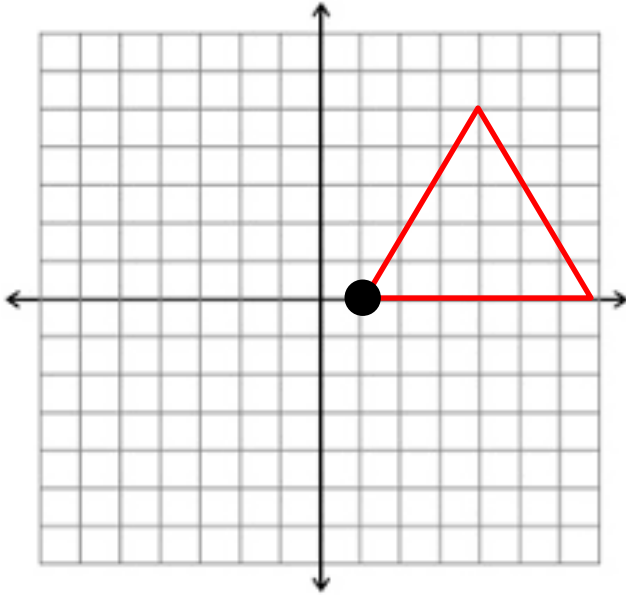
Name: _____

You will have 30 min to complete this quiz.

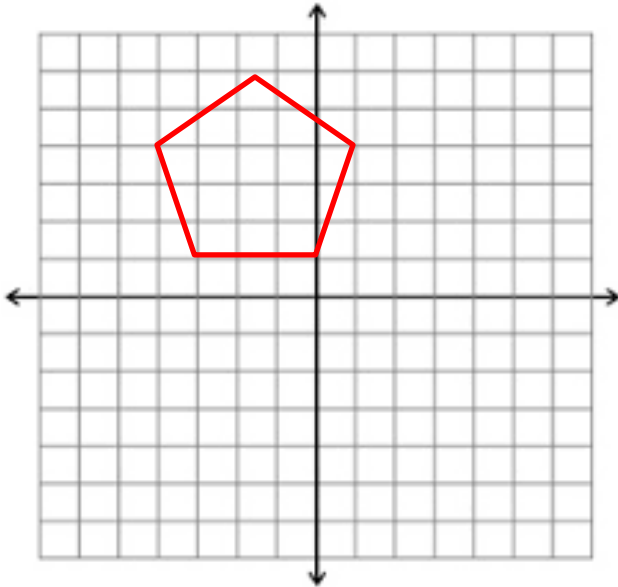
Read each question carefully and show your work!!!!

Good luck 😊

1. Rotate the Triangle 90 degrees counterclockwise at the marked center.

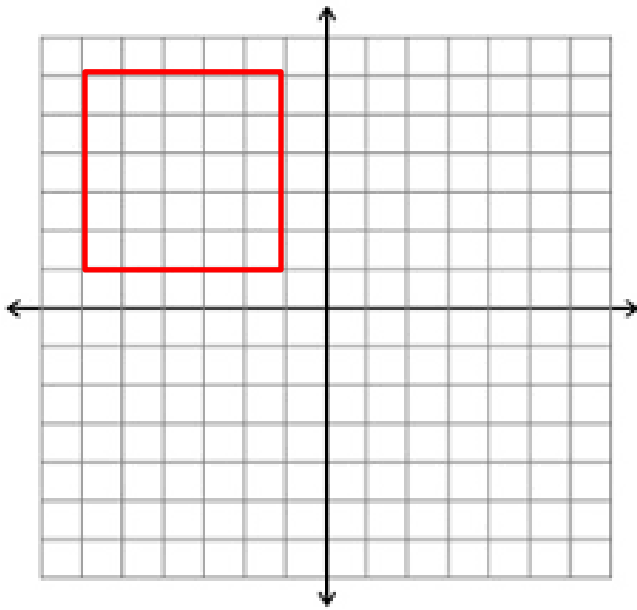


2. Reflect the pentagon over the x-axis.

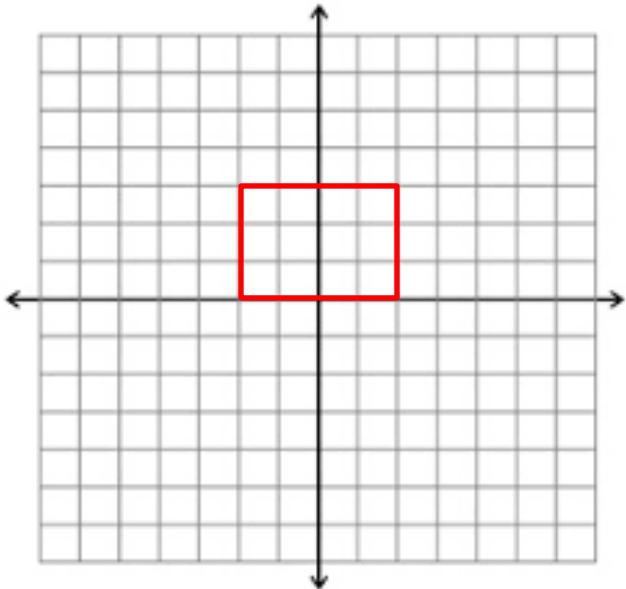


3. Translate the square down 4 and to the right 5.

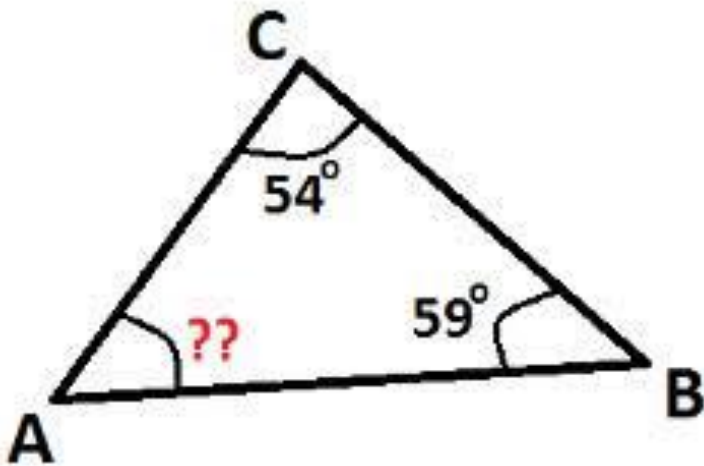
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4. Dilate the rectangle with scale factor 2.

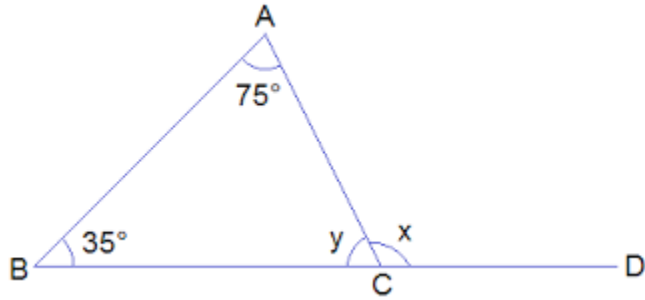


5. Find the missing angle measurement.

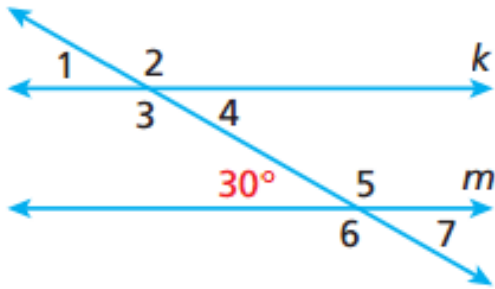


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6. Find the exterior angle measurement.



7. Find the missing angle measurements.



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Unit 5 quiz ANSWER KEY

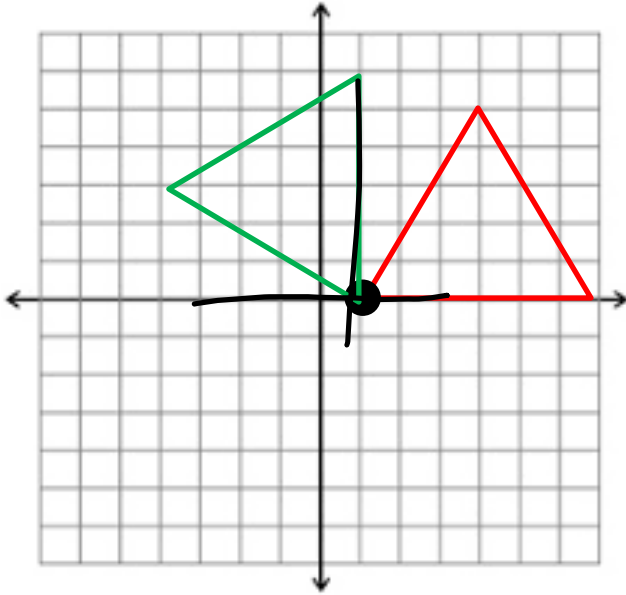
Name: _____

You will have 30 min to complete this quiz.

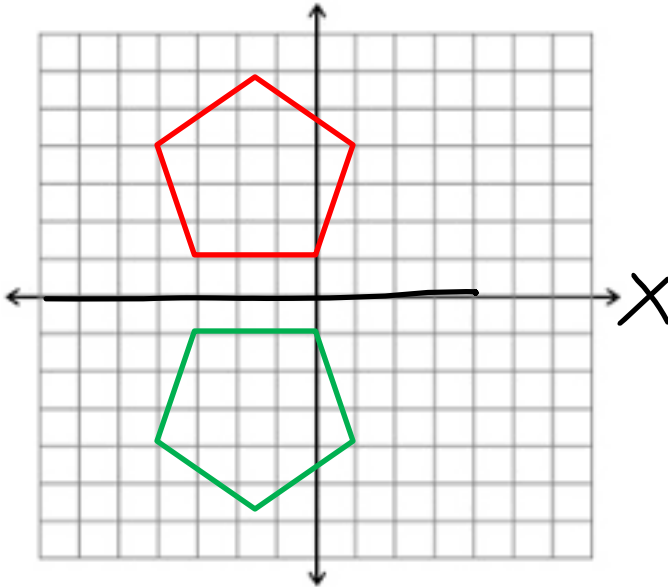
Read each question carefully and show your work!!!!

Good luck 😊

8. Rotate the Triangle 90 degrees counterclockwise at the marked center.

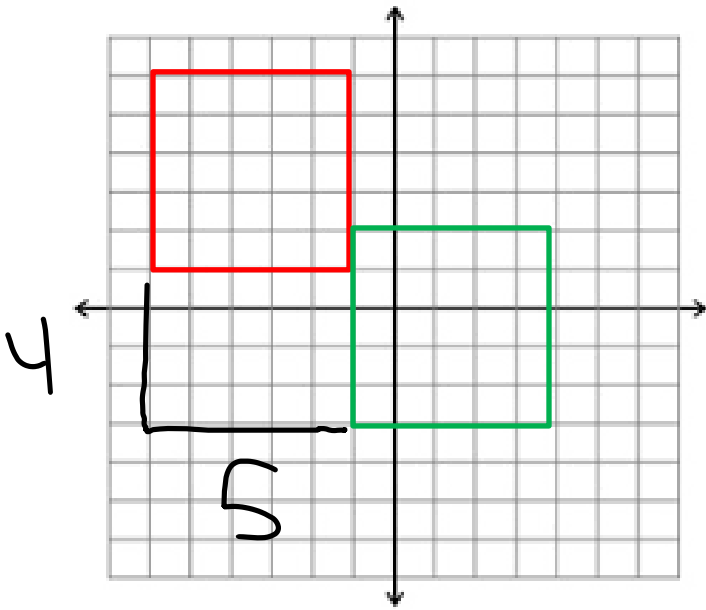


9. Reflect the pentagon over the x-axis.

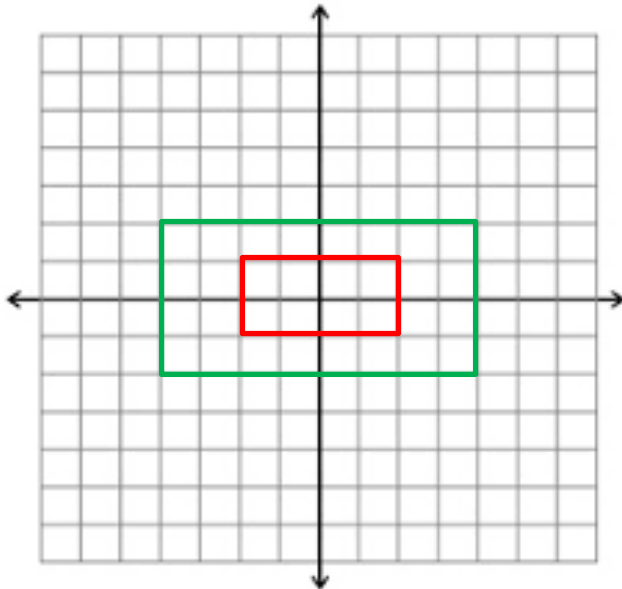


10. Translate the square down 4 and to the right 5.

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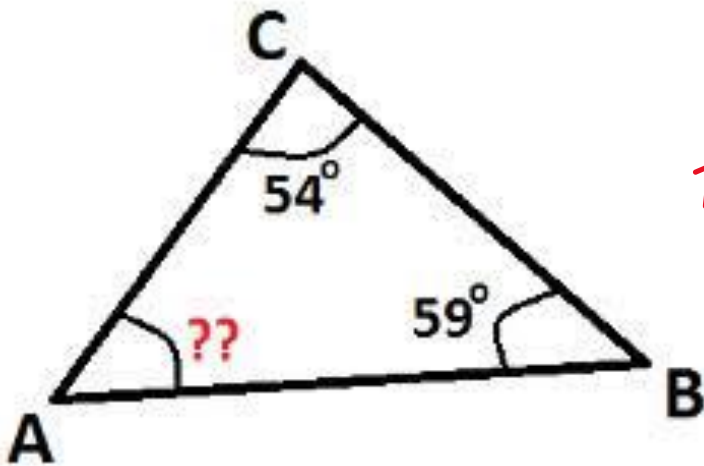


11. Dilate the rectangle with scale factor 2.



$A(-2, 1)$	$A(-4, 2)$
$B(2, 1)$	$B(4, 2)$
$C(2, -1)$	$C(4, -2)$
$D(-2, -1)$	$D(-4, -2)$

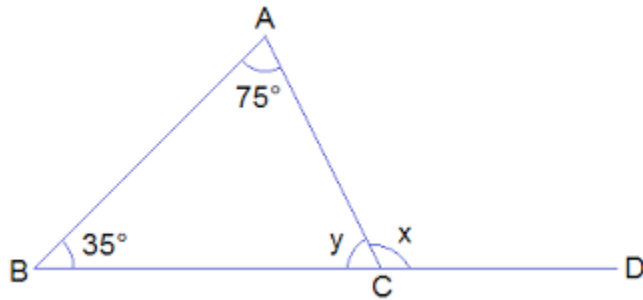
12. Find the missing angle measurement.



$$A = 67^\circ$$

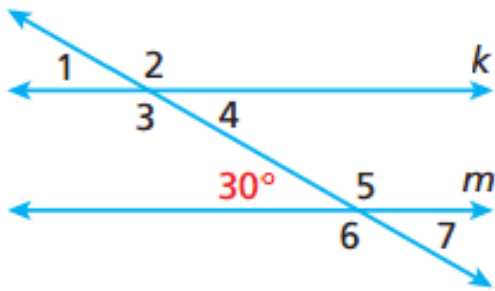
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13. Find the exterior angle measurement.



$$x = 110^\circ$$

14. Find the missing angle measurements.



$$\begin{aligned} 1 &= 30^\circ \\ 2 &= 150^\circ \\ 3 &= 150^\circ \\ 4 &= 30^\circ \end{aligned}$$

$$\begin{aligned} 5 &= 150^\circ \\ 6 &= 150^\circ \\ 7 &= 30^\circ \end{aligned}$$

Lesson Plan Template

Grade: 8 Day 5		Subject: Geometry	
Materials: White board		Technology Needed: Power point, computer	
Instructional Strategies: <input type="checkbox"/> Direct instruction <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list)		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Independent activity <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:	
Standard(s) 8.G.6 Explain a proof of the Pythagorean Theorem and its converse. 8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems in two and three dimensions. 8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.		Differentiation Below Proficiency: During worktime I will go around and help those who are struggling. They will get extra help from me or their peers. Above Proficiency: Be on their own and may ask questions when needed Approaching/Emerging Proficiency: Be on their own and may ask questions when needed. Modalities/Learning Preferences: Visual, hands on	
Objective(s) Students can solve unknown side lengths using the Pythagorean theorem. Students can use the Pythagorean theorem to find distances between two points.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students know to stay at a quiet level when they are working and to not talk when the teacher is talking.	
Bloom's Taxonomy Cognitive Level: Explain, show, manipulate.			
Classroom Management- (grouping(s), movement/transitions, etc.) Students will stay in their seats when they are working.			
Minutes	Procedures		
0	Set-up/Prep: The premade worksheet with students.		
10	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Hand back quizzes We will go over the quiz from yesterday. Go over the most missed problems.		
25	Explain: (concepts, procedures, vocabulary, etc.) <p style="text-align: center;">Today we are talking about Pythagorean theorem. $a^2 + b^2 = c^2$</p> <p>It is one of the most well-known theorems. The theorem states that the sum of the squares on the legs of a right triangle are equal to the square on the hypotenuse. We can use this formula to find the distance between two points when it is unclear on a graph.</p> <p>I will be going over a proof of the theorem and a converse to it.</p> <p>First let's look at the right triangle ACB with sides a, b, and c. We will construct a square with sides c and then put the triangle ACB all around it to form a bigger square.</p> <p>We will compare the areas written different ways. The first area we have $(a + b)^2 = a^2 + 2ab + b^2 = \text{Area}$. The second area we come up with is 4 triangles plus the square. This gives us</p> $4 \cdot \left(\frac{a \cdot b}{2}\right) + c^2$ <p>We can set them equal because it's the area of the same square and by simplification we get our Pythagorean theorem. So, it is proved.</p> <p>Next, we will do a proof with a converse.</p> <p>Let's construct a right triangle DEF such that EF=BC, DF=AC, and angle EFD= 90 degrees.</p> <ol style="list-style-type: none"> 1. We assume triangle ABC is not a right triangle. 2. EF=BC and DF=AC by construction. 3. The measure of angle EFD=90 degrees by construction. 4. $(EF)^2 + (DF)^2 = (ED)^2$ by the Pythagorean theorem. 5. $(BC)^2 + (AC)^2 = (AB)^2$ which is given 		

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	<p>6. $(EF)^2 + (DF)^2 = (AB)^2$ by substitution</p> <p>7. $(ED)^2 + (AB)^2$</p> <p>8. $ED = AB$</p> <p>9. Triangle DEF is congruent to triangle ABC by side-side-side postulate.</p> <p>10. Angle EFD is congruent to angle BAC</p> <p>11. The measure of angle EFD = the measure of angle BCA which equal 90 degrees.</p> <p>12. So, angle BCA = 90 degrees which contradicts (1). Let's look at examples now.</p> <p>Example 1 wants us to find the missing side length. We can plug our numbers into the equation. Which gives us $c=10$. You try example 2. You should have gotten $x=15$. You try example 3 you should get $w=24$.</p> <p>Example 4 gives us the length of the hypotenuse and we need to find the leg length. We can plug the numbers into the equation and we will get the square root of 216.</p> <p>Example 5 is a word problem. Let's first draw a picture. We have Domonic flying a kite. We know he is 15 in front of the kite and the kite is 20 ft above the ground. We want to know how long the kite rope is. We can plug into the equation and get 25ft for the rope length.</p> <p>You try example 6. You should get 13 ft for how long the ladder is.</p> <p>Now we want to find the distance between two points. We will use the same concept we have been doing. Let's draw a triangle and find the leg lengths. We see the length of the legs are 6 and 8. We will plug those into the equation and the distance between the two points is 10.</p> <p>You try the next example. You should get 5.</p>
10	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) Students will do the examples I provide during the lesson for engagement.</p>
5	<p>Review (wrap up and transition to next activity): Talk a little bit about the project and what tomorrow looks like.</p>
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc. See if students are getting the example problems down.</p> <p>Consideration for Back-up Plan:</p>	<p>Summative Assessment (linked back to objectives) End of lesson:</p> <p>Unit test If applicable- overall unit, chapter, concept, etc.:</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p>	

Lesson Plan Template

Day 6 & 7 Pythagorean Theorem Project and Presentation.

You and another person will pick a Pythagorean proof that will be demonstrated Infront of the class.

Today you will get a partner and look up online the different proofs of the Pythagorean Theorem.

When you have picked a proof, you will come talk to me and I will approve it.

Once I approve it you will do the research:

Who came up with it?

When was it done?

Where was it done?

How is it done?

When you answer these questions, you will then create the proof yourself. You can do a poster board describing the proof and present that. You can create a cut of out of the proof with colored construction paper and then demonstrate it to the class. You can make a power point presentation.

Tomorrow, we will present them Infront of the class. Each presentation should take no longer than 5-10 minutes.

Presentation day.

Students will be graded on participation and if the proof is presented right.

Lesson Plan Template

Grade: 8 (Day 8)		Subject: Geometry	
Materials: Projector, computer, pencil, paper		Technology Needed: Computer, power point	
Instructional Strategies: <input type="checkbox"/> Direct instruction <input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input type="checkbox"/> Guided practice <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> PBL <input type="checkbox"/> Learning Centers <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list) <input type="checkbox"/> Modeling		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Hands-on <input type="checkbox"/> Independent activity <input type="checkbox"/> Technology integration <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Imitation/Repeat/Mimic <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:	
Standard(s) 8.G.9 Know the formulas for the volume of cones, cylinders, and spheres. Use the formulas to solve real world and mathematical problems.		Differentiation Below Proficiency: They can work with a partner while going through the practice problems. If I see they are not understanding the content, I will work with them personally until they get it down. Above Proficiency: Students will be on their own and may ask questions when needed. Approaching/Emerging Proficiency: Students will be on their own and may ask questions when needed. Modalities/Learning Preferences: Visual, hands on	
Objective(s) Students can define the formulas for the volume of cylinders, cones, and spheres. Students can solve real world problems with volumes of cylinders, cones, and spheres. Students can apply the formulas for the volume of cylinders, cones, and spheres. Bloom's Taxonomy Cognitive Level: Explain, show, manipulate.			
Classroom Management- (grouping(s), movement/transitions, etc.) Students know to go from question to question.			
Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students will be reminded to stay at a quiet level. If not, we will end the activity.			
Minutes	Procedures		
0	Set-up/Prep: Problems will be placed around the room.		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) We will talk about the presentations yesterday. I will ask if it they liked the activity and get some feedback. .		
10	Explain: (concepts, procedures, vocabulary, etc.) Today we are talking about the volumes of cylinders, cones, and spheres. The formulas are here. Make sure you write these down. The volume of a cylinder is: $V = \pi r^2 h$ The volume of a cone is: $v = \frac{1}{3} \pi r^2 h$ The volume of a sphere is: $V = \frac{4}{3} \pi r^3$		
30	Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) I have set up problems all around the room. You will go from problem to problem and answer each one. Keep all the problems written down in your notebook and you can check your answers when you have completed them. If you do not get though all the problems that's okay, I just want you to get practice in. (Problems are on the notes sheet)		
5	Review (wrap up and transition to next activity): I will talk about how we will have a review tomorrow and then the next day we will have our unit test.		

Lesson Plan Template

<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc. I will be around the room checking for understanding.</p> <p>Consideration for Back-up Plan: Workday</p>	<p>Summative Assessment (linked back to objectives) End of lesson: Unit test</p> <p>If applicable- overall unit, chapter, concept, etc.:</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p>	

Lesson Plan Template

Day 9 – Review Day

You decide what you need to review. Here are websites for practice. Take your review day for yourself.

Review Day

Transformations:

https://www.transum.org/software/SW/Starter_of_the_day/Students/Transformations/Draw.asp?Level=2

Angle Sum

https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-triangle-angles/e/triangle_angles_1

Exterior angle

<https://www.khanacademy.org/math/in-in-grade-9-ncert/xfd53e0255cd302f8:lines-and-angles/xfd53e0255cd302f8:angle-sum-property-of-a-triangle/e/exterior-angle-property-problems>

Transversal

https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-angles-between-lines/e/parallel_lines_1

Similar Triangles

https://www.khanacademy.org/math/geometry/hs-geo-similarity/hs-geo-triangle-similarity-intro/e/similar_triangles_1

Pythagorean Theorem

https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-pythagorean-theorem/e/pythagorean_theorem_1

Volume of cylinders, cones, and spheres

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/e/volume-of-cylinders--spheres--and-cones-word-problems>

Lesson Plan Template

Day 10 – Unit Test

UNIT 5 TEST

Name: _____

You will have 50minute to complete this 25 questions test.

You can only you're a pencil, calculator, and YOURSELF.

Make sure you show ALL your work as you can get partial credit.

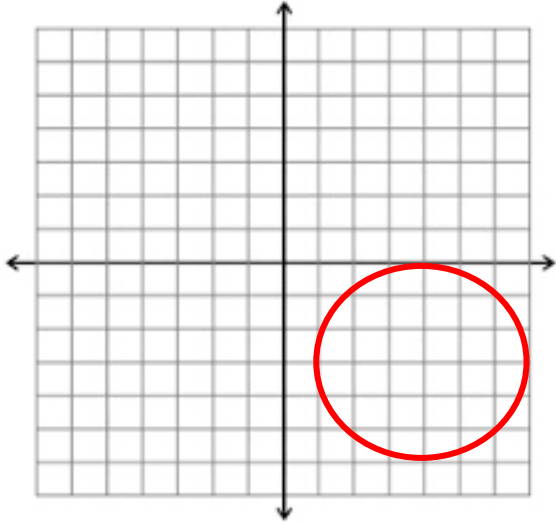
Make sure you read all the directions.

GOOD LUCK! 😊

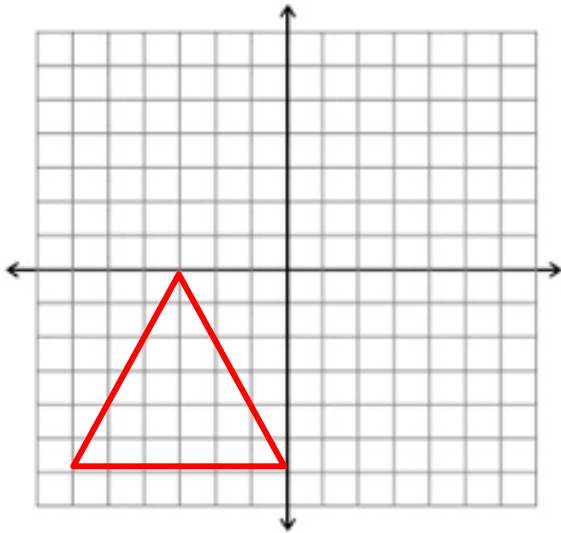
Lesson Plan Template

Answer questions 1-8 on the graph.

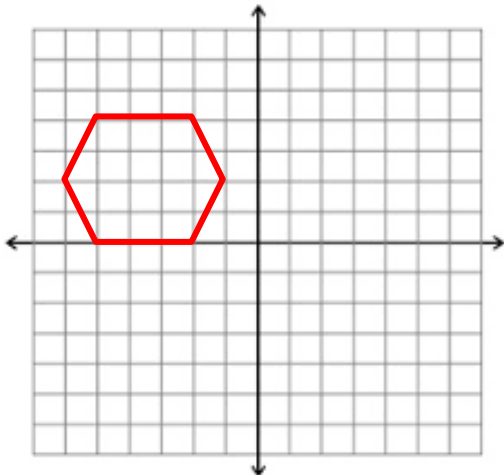
1. Translate the circle up 6 and to the left 3.



2. Translate the triangle by vector $\begin{pmatrix} 4 \\ 5 \end{pmatrix}$.

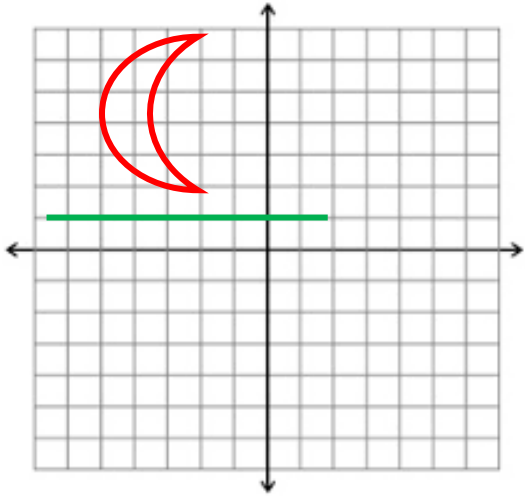


3. Reflect the hexagon over the y-axis.

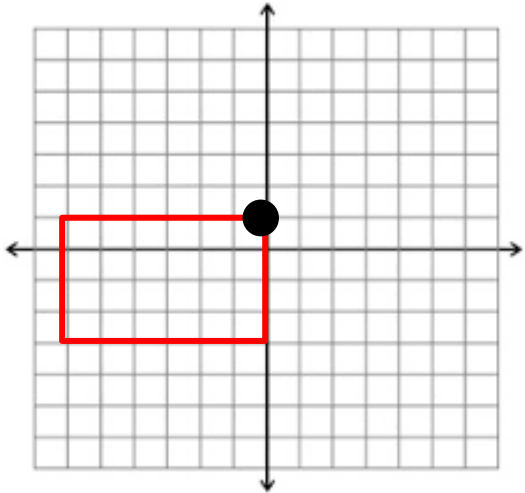


Lesson Plan Template

4. Reflect the moon over the given green axis.

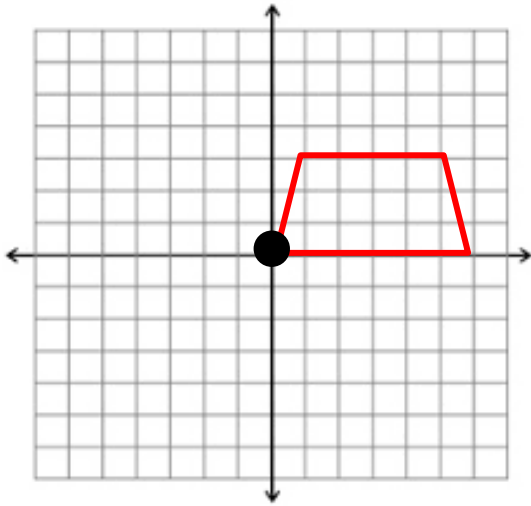


5. Rotate the rectangle 90 degrees clockwise at the marked center.

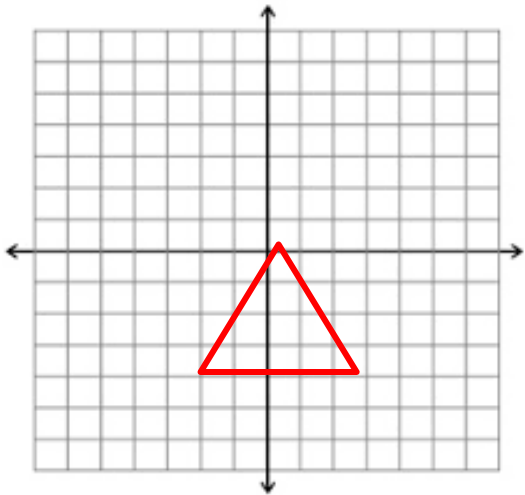


6. Rotate the trapezoid 90 degrees counterclockwise at the marked center.

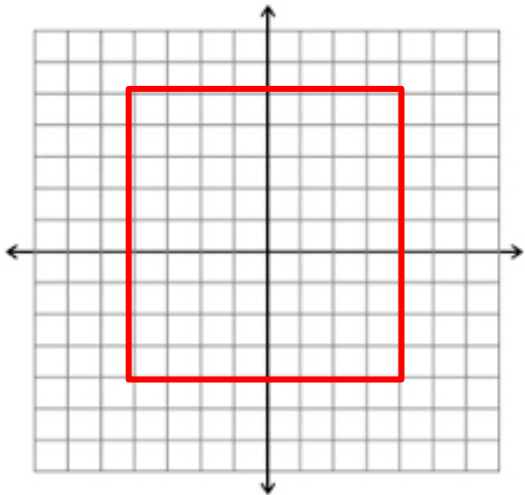
Lesson Plan Template



7. Dilate the triangle by scale factor of 2.



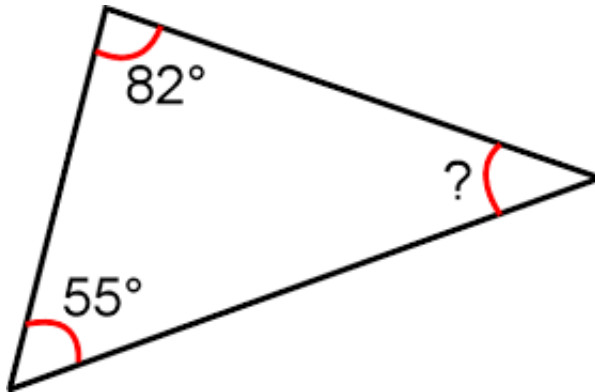
8. Dilate the square by scale factor of $\frac{1}{2}$.



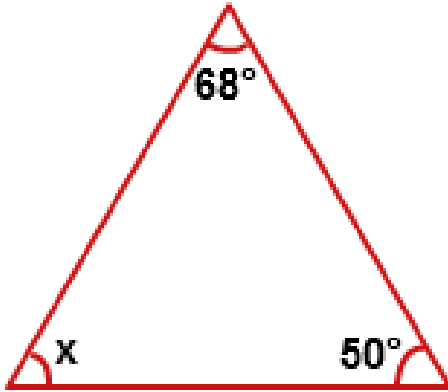
Lesson Plan Template

For questions 9-15 find the missing angle measures.

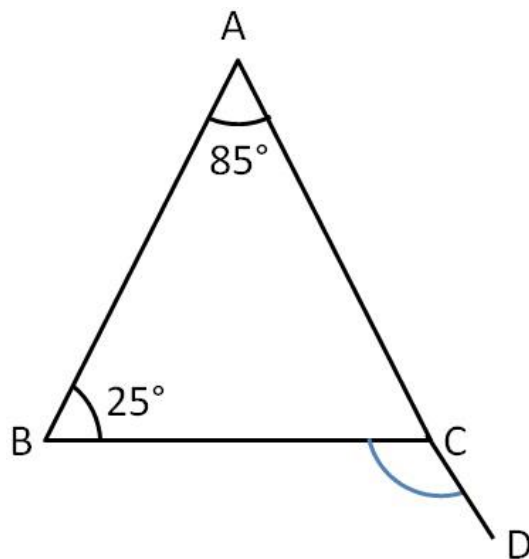
9. Find the missing angle in the triangle.



10. Find the missing angle in the triangle.

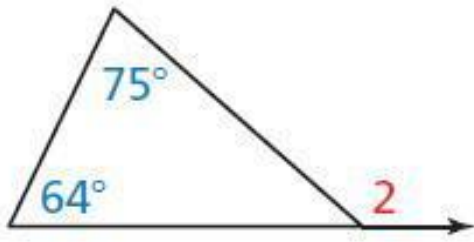


11. Find the exterior angle.

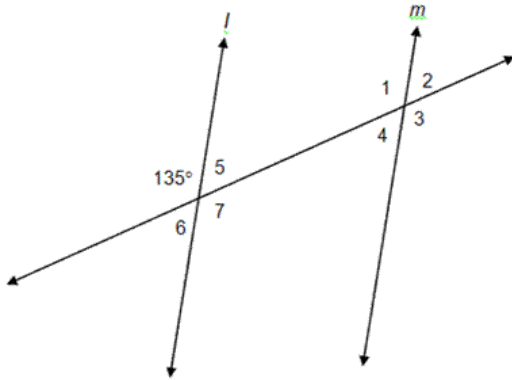


12. Find the exterior angle.

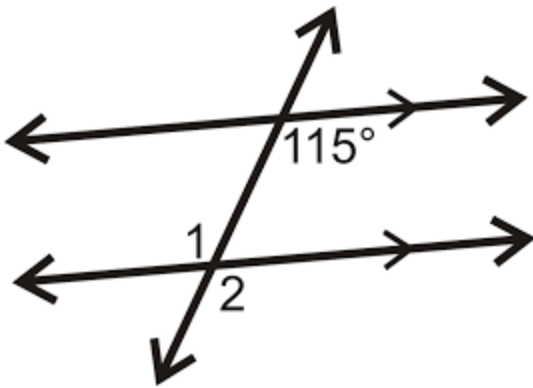
Lesson Plan Template



13. Find all the missing angles.

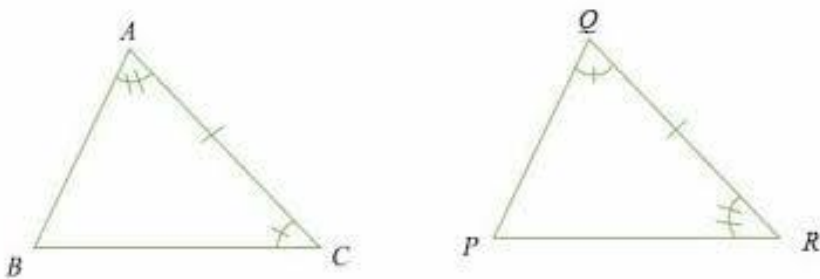


14. Find all the missing angles.



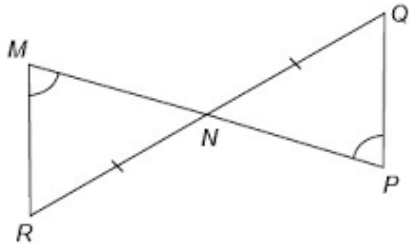
For questions 15-16 circle true or false for the following statement.

15. True or false? The two triangles are congruent.



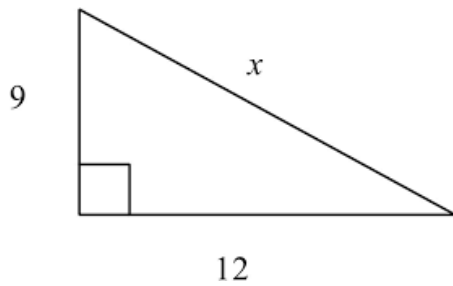
16. True or false? The two triangles are congruent.

Lesson Plan Template

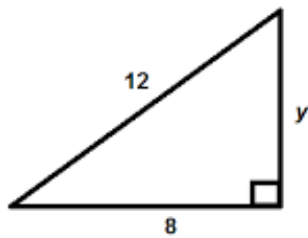


For questions 17-19 find the missing side length.

17. Find the missing side length of the right triangle.



18. Find the missing side length of the right triangle.

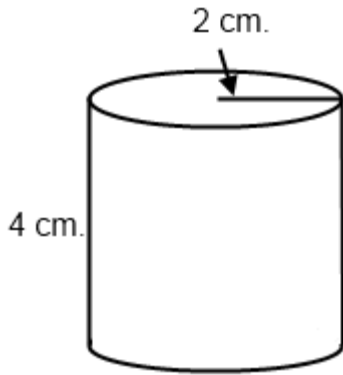


19. Jimmy is flying a kite. The kite is 20 ft off the ground and Jimmy is 15 from the kite. How long is the kite rope?

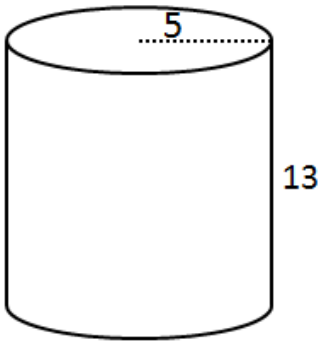
Lesson Plan Template

For questions 20-25 find the volume. Round to the nearest hundredth.

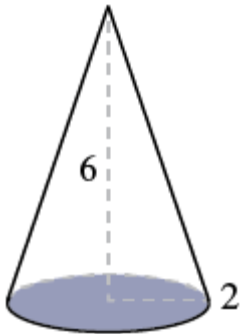
20. Find the volume of the cylinder.



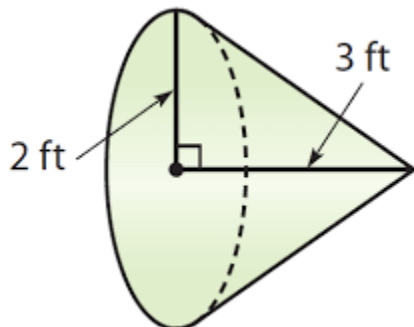
21. Find the volume of the cylinder.



22. Find the volume of the cone.

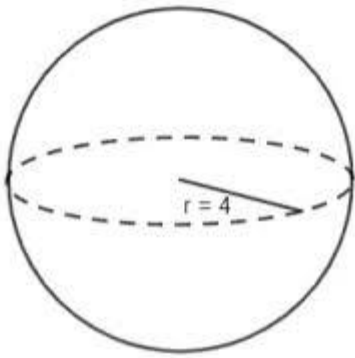


23. Find the volume of the cone.

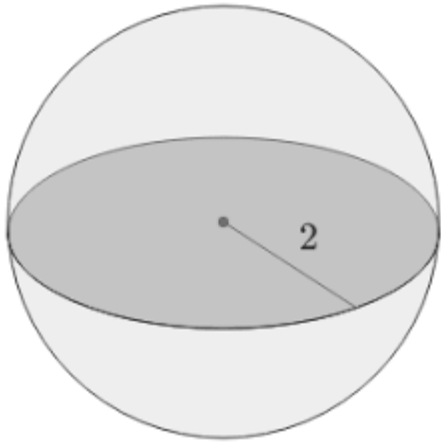


Lesson Plan Template

24. Find the volume of the sphere.



25. Find the volume of the sphere.



UNIT 5 TEST - ANSWER KEY

Name: _____

You will have 50minute to complete this 25 questions test.

You can only you're a pencil, calculator, and YOURSELF.

Make sure you show ALL your work as you can get partial credit.

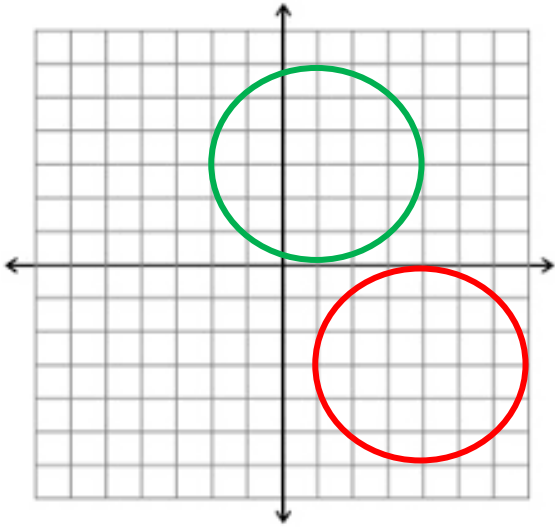
Make sure you read all the directions.

GOOD LUCK! 😊

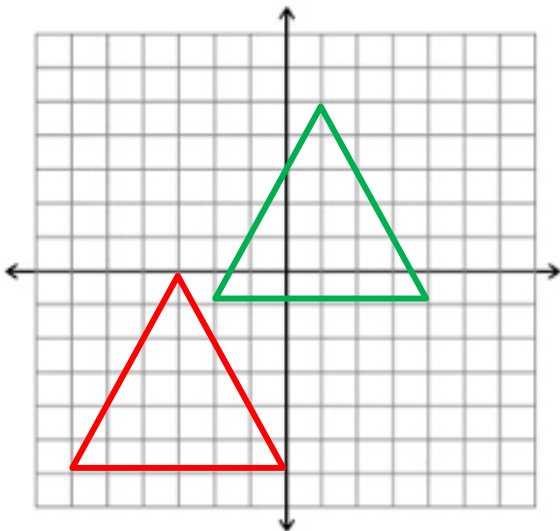
Answer questions 1-8 on the graph.

Lesson Plan Template

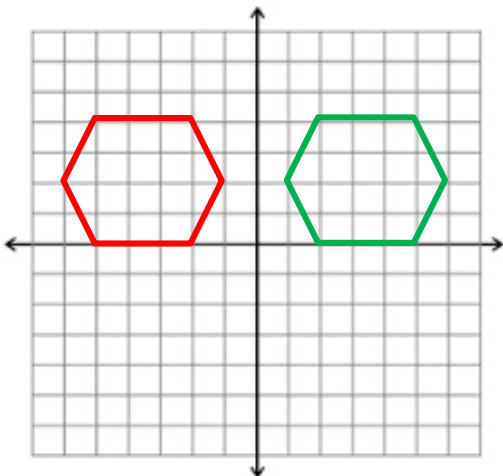
26. Translate the circle up 6 and to the left 3.



27. Translate the triangle by vector $\begin{pmatrix} 4 \\ 5 \end{pmatrix}$.

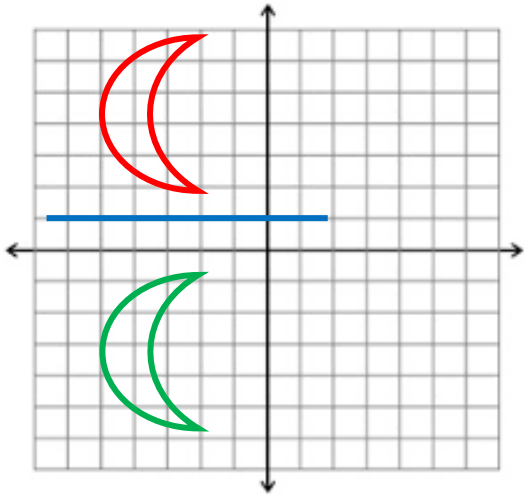


28. Reflect the hexagon over the y-axis.

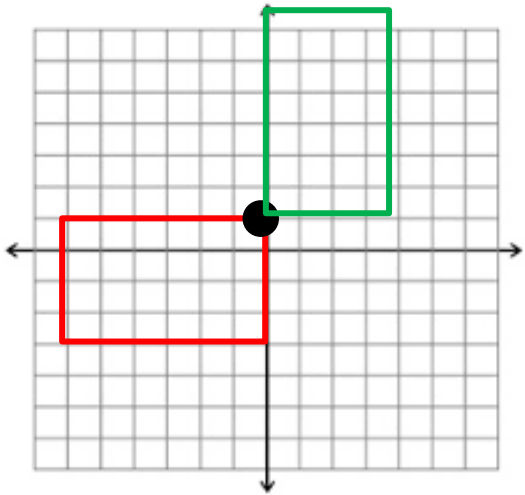


Lesson Plan Template

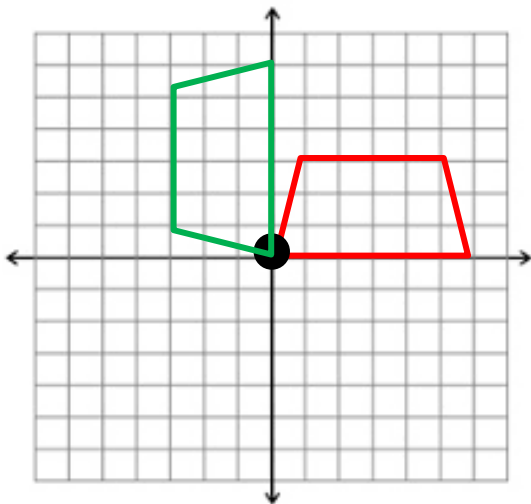
29. Reflect the moon over the given green axis.



30. Rotate the rectangle 90 degrees clockwise at the marked center.

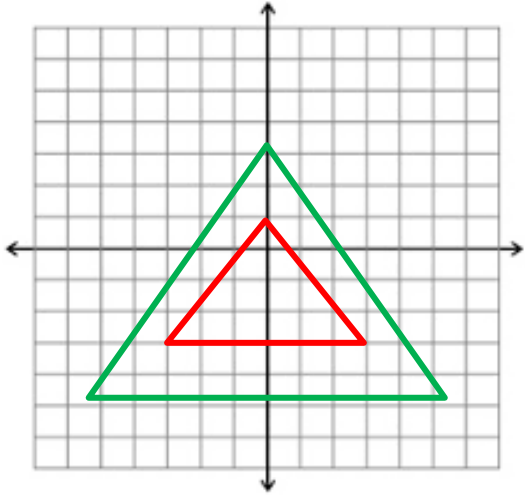


31. Rotate the trapezoid 90 degrees counterclockwise at the marked center.

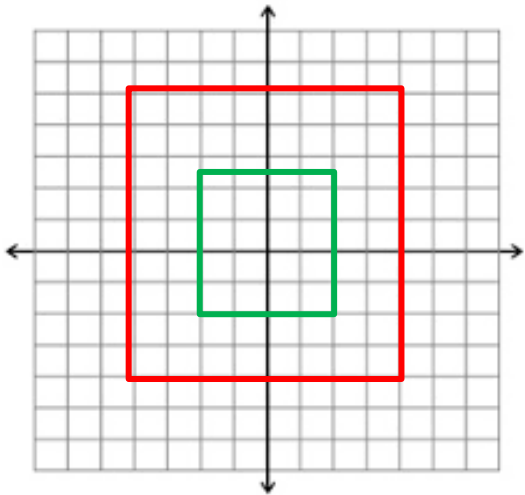


Lesson Plan Template

32. Dilate the triangle by scale factor of 2.

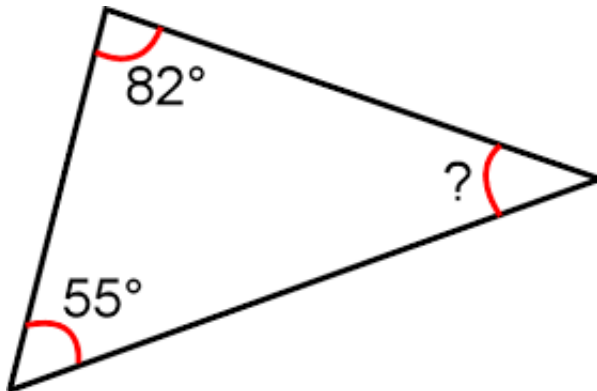


33. Dilate the square by scale factor of $\frac{1}{2}$.



For questions 9-15 find the missing angle measures.

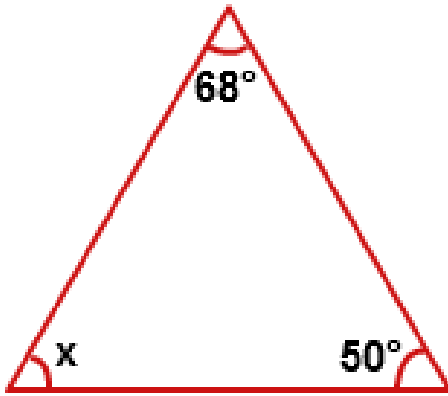
34. Find the missing angle in the triangle.



44°

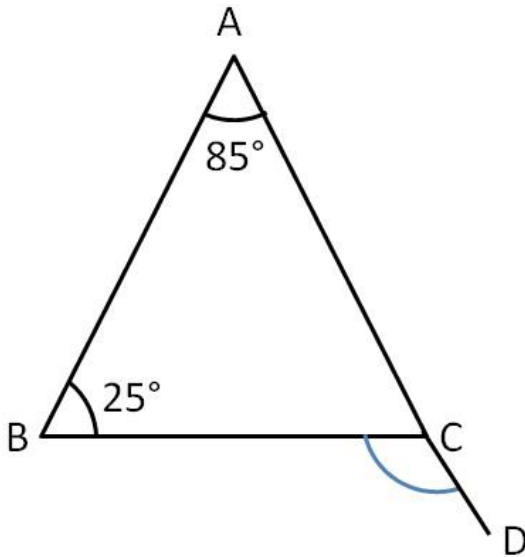
Lesson Plan Template

35. Find the missing angle in the triangle.



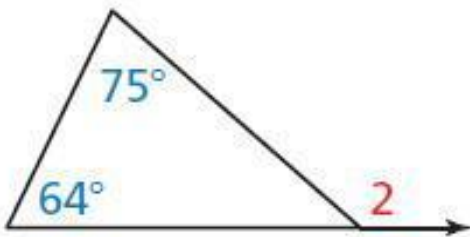
62°

36. Find the exterior angle.



110°

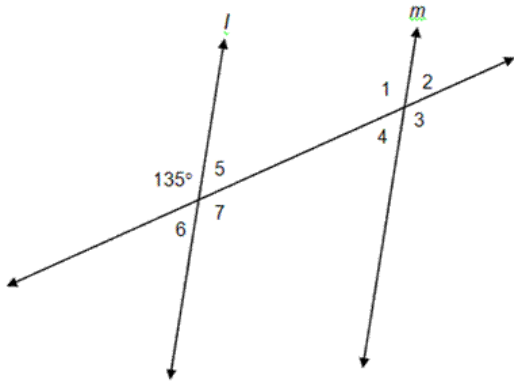
37. Find the exterior angle.



139°

38. Find all the missing angles.

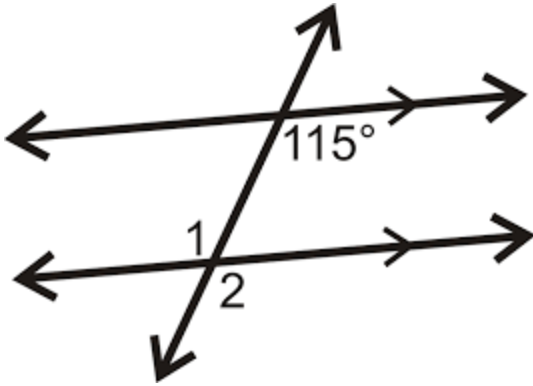
Lesson Plan Template



Handwritten solutions for question 39:

$1 = 135^\circ$
 $2 = 45^\circ$
 $3 = 135^\circ$
 $4 = 45^\circ$
 $5 = 45^\circ$
 $6 = 45^\circ$
 $7 = 135^\circ$

39. Find all the missing angles.

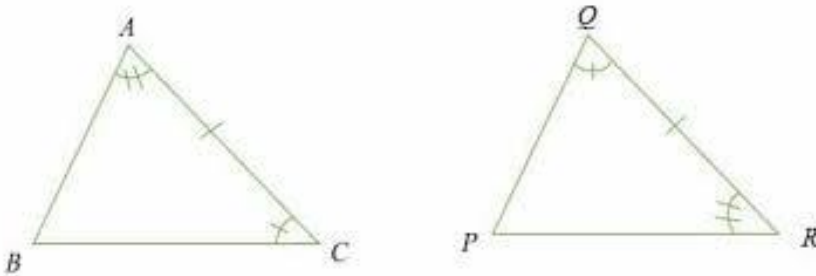


Handwritten solutions for question 39:

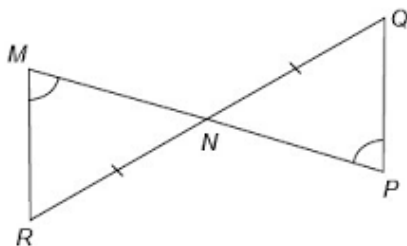
$1 = 115^\circ$
 $2 = 115^\circ$

For questions 15-16 circle true or false for the following statement.

40. True or false? The two triangles are congruent.



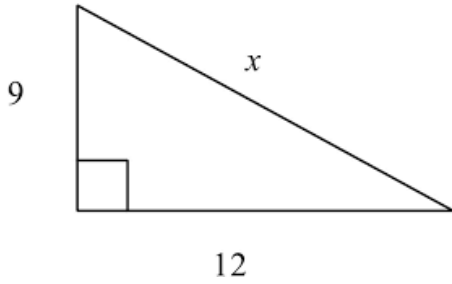
41. True or false? The two triangles are congruent.



Lesson Plan Template

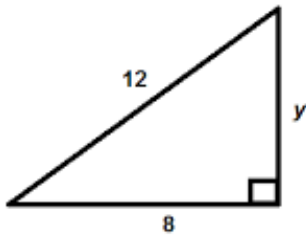
For questions 17-19 find the missing side length.

42. Find the missing side length of the right triangle.



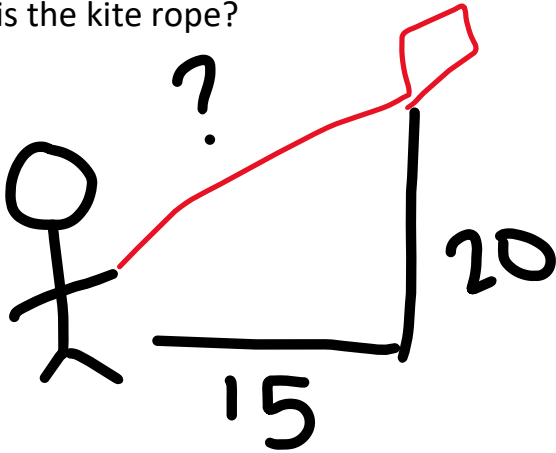
$$x = 15$$

43. Find the missing side length of the right triangle.



$$y = \sqrt{80}$$

44. Jimmy is flying a kite. The kite is 20 ft off the ground and Jimmy is 15 from the kite. How long is the kite rope?

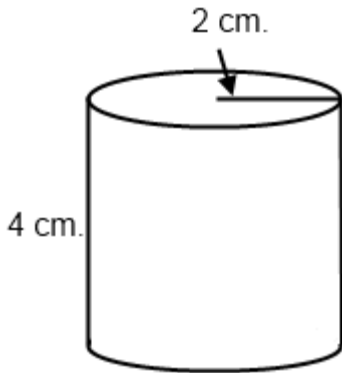


$$? = 25$$

Lesson Plan Template

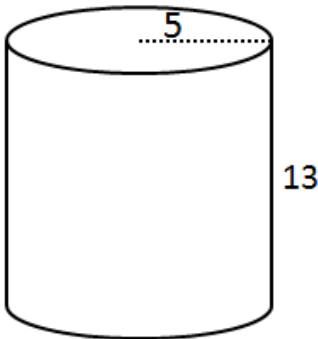
For questions 20-25 find the volume. Round to the nearest hundredth.

45. Find the volume of the cylinder.



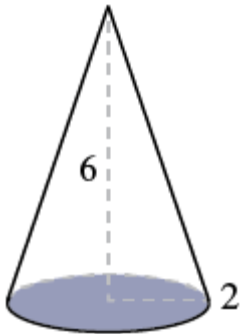
$$V = 50.27 \text{ cubic cm}$$

46. Find the volume of the cylinder.



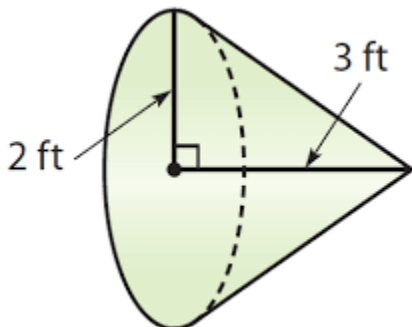
$$V = 1021.02 \text{ cube}$$

47. Find the volume of the cone.



$$V = 25.13 \text{ cube}$$

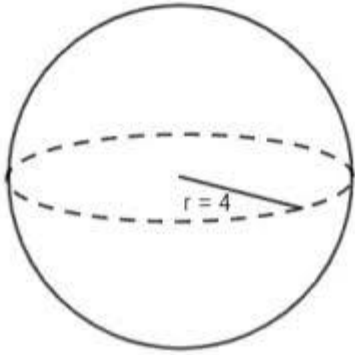
48. Find the volume of the cone.



$$V = 12.57 \text{ cubic ft}$$

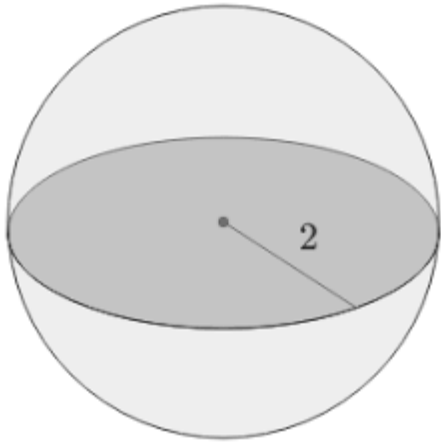
Lesson Plan Template

49. Find the volume of the sphere.



$$V = 268.08 \text{ cube}$$

50. Find the volume of the sphere.



$$V = 113.1$$