G.CO.13 How do I inscribe an equilateral triangle in a circle?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 11, Lesson 1

1. Warm-up
2. Quiz G.CO.7
3. Notes
4. ICA
5. Closure

Inscribe an equilateral triangle in a circle

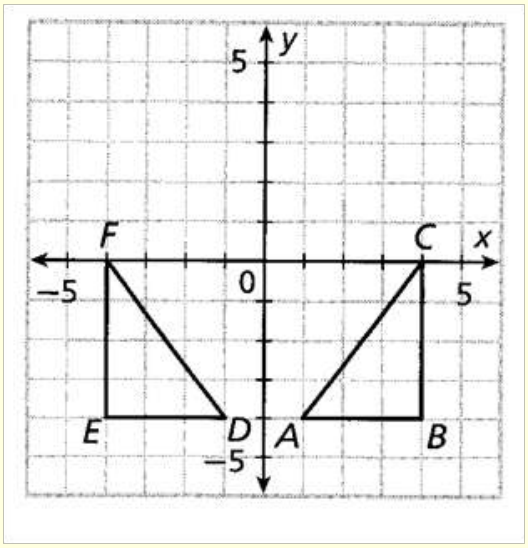
61

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Warm-up: Answer the following questions.

1. Are the two triangles congruent?

2. Explain your answer in terms of rigid motions.

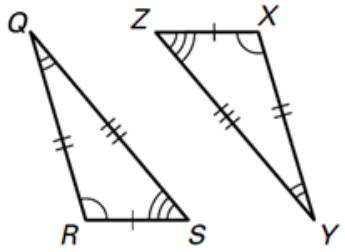


G.CO.7 Quiz!!

Check Point Quiz Name_____
Geometry 1: Triangles Hour _____
G.CO.7

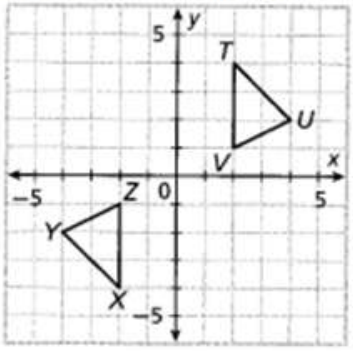
G-CO.7. **Learning Target**: *I can show that two triangles are congruent through rigid motions if and only if the corresponding pairs of sides and corresponding pairs of angles are congruent.*

1. Complete the congruence statement for the figures.



$\Delta QRS \cong$ _____

2. Use the definition of congruent triangles in terms of rigid motions to determine whether the two figures are congruent and explain your answer.



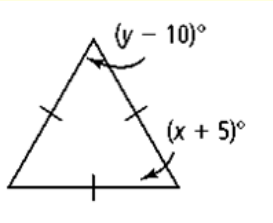
Are the triangles congruent? _____

Explain:

_____
_____
_____
_____

equilateral triangle

- triangle with 3 equal sides AND 3 equal angles (60° each)

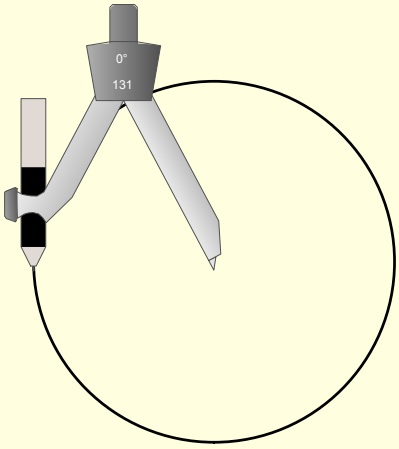


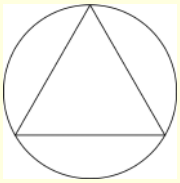
inscribe

- "enclosed by"

- all the vertices of the object touch the other object

inscribing an equilateral triangle in a circle





1. Draw a circle. Mark the center.
2. Put a point on the circumference of the circle; measure the radius (distance from center to the mark).
3. Make a mark on the circumference of the circle. Then, with your compass point at that mark, make another mark on the circumference of the circle. Continue around the circle until you have 6 marks.
4. Connect every other mark with a straight edge.

G.CO.13 I can construct an equilateral triangle inscribed in a circle.

The Star of David is an important symbol in world history.

As a symbol of Judaism

In the 17th century, the Shield of David as the hexagram began to represent the Jewish community generally, when the Jewish quarter of Vienna was formally distinguished from the rest of the city by a boundary stone having the hexagram on one side and the Christian cross on the other. By the 18th century, the Shield appeared to represent the Jewish people in both secular (politics) and religious (synagogue) contexts.

The Holocaust

A Star of David, often yellow-colored, was used by the Nazis during the Holocaust as a method of identifying Jews. After the German invasion of Poland in 1939 there were initially different local decrees forcing Jews to wear a distinct sign. If a Jew was found without wearing the star in public, they could be subjected to severe punishment. The requirement to wear the Star of David with the word *Jude* (German for Jew) inscribed was then extended to all Jews over the age of six in the Reich.

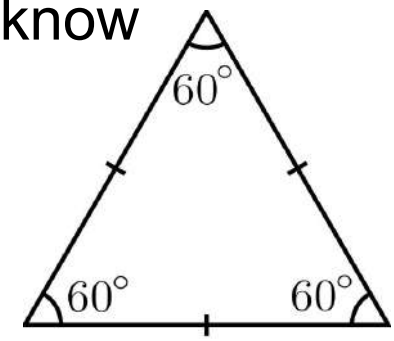
Modern use

The flag of Israel, depicting a blue Star of David on a white background, between two horizontal blue stripes was adopted on October 28, 1948, five months after the country's establishment. The origins of the flag's design date from the First Zionist Congress in 1897; the flag has subsequently been known as the "flag of Zion".

Flag of Israel

Directions
Construct a drawing of the Israeli flag only using a compass and straight edge. Be sure to color the flag appropriately when finished.

What are the two ways to know that this is an equilateral triangle?



G.CO.9 How do I prove theorems about perpendicular bisectors?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 11, Lesson 2

1. Warm-up
2. Review
3. Notes: Perpendicular bisectors
4. ICA
5. Closure

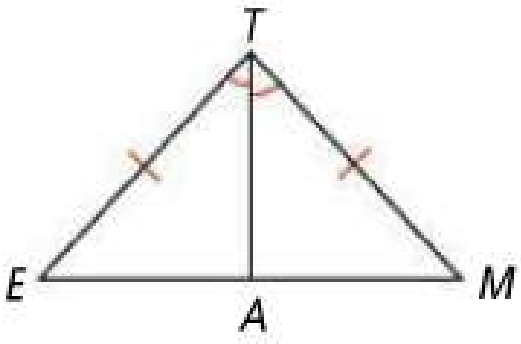
63

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Warm-up: Answer the following questions.

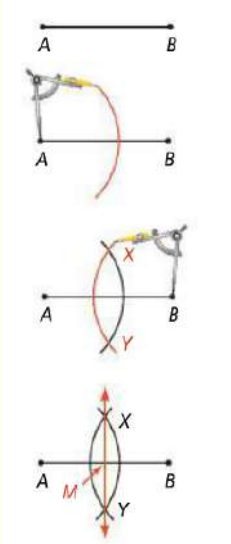
Name the postulate or theorem that you can use to show the triangles are congruent. Then explain why the statement is true.

1. $\overline{EA} \cong \overline{MA}$



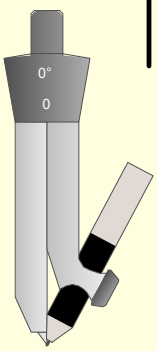
REVIEW...

Constructing Perpendicular Bisectors



Perpendicular Bisector Theorem

If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.



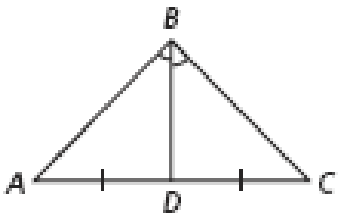
Whiteboard Review!

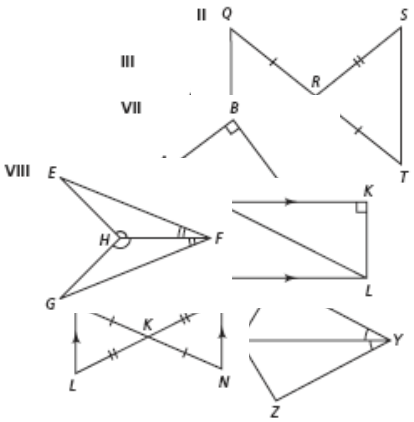
Work as a team to write down as many "big hitters" (SAS, SSS, ASA) as you can that could likely apply to the diagram.

When your teacher calls time, your team will reveal the correct answers and you will earn a point for each correctly identified big hitter.

A point is subtracted for incorrect answers. The team with the greatest number of points wins.

I



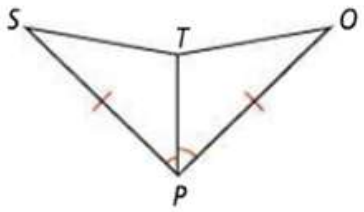


G.CO.8 and G.CO.9 Quiz!!

Check Point Quiz Name_____
Geometry 1: Triangles Hour _____
G.CO.8

G.CO-8. **Learning Target:** *I can explain which series of angles and sides are essential in order to show congruence through rigid motions.*

1. Which of the following can be used to justify the statement $\Delta STP \cong \Delta OTP$?

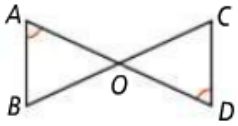


A). SSS B). AAS C). SAS D). ASA

2. Fill in the blanks for the proof below.

Given: $\angle A \cong \angle D$, O is the midpoint of $\overline{AD}$

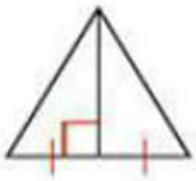
Prove: $\triangle AOB \cong \triangle DOC$



Statements	Reasons
1. $\angle A \cong \angle D$	1. Given
2. O is the midpoint of $\overline{AD}$	2. Given
3. $\overline{AO} \cong \overline{DO}$	3. Definition of midpoint
4. $\angle AOB \cong \angle DOC$	4. _____
5. $\triangle AOB \cong \triangle DOC$	5. _____

3. State the postulate you can use to prove the triangles are congruent. If you do not have enough information, *write not enough information.*

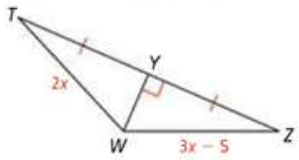
_____



Check Point Quiz Name_____
Geometry 1: Triangles Hour _____
G.CO.9

G-CO.9. *I can prove the following theorem: points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*

Use the diagram below for questions 1-3.



1. What is the relationship between $\overline{WY}$ and $\overline{TZ}$?

_____

_____

2. What is the value of x? _____

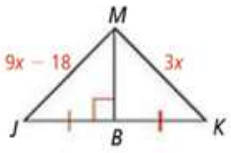
3. Find WZ. _____

4. A park ranger wants to build a hot dog stand equidistant between the two points shown below. Draw a construction of possible locations and explain why these locations would be suitable.

Explanation: _____

_____

Use the figure at the right for Exercises 6–8.



6. What is the relationship between $\overline{MB}$ and $\overline{JK}$?

7. What is value of x?

8. Find JM.

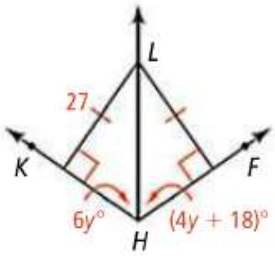
6. _____

_____

7. x = _____

8. JM = _____

Use the figure at the right for Exercises 12–15.



12. According to the diagram, how far is L from $\overrightarrow{HK}$? From $\overrightarrow{HF}$?

13. How is $\overrightarrow{HL}$ related to $\angle KHF$? Explain.

14. Find the value of y.

15. Find $m\angle KHL$ and $m\angle FHL$.

12. _____

13. _____

_____

_____

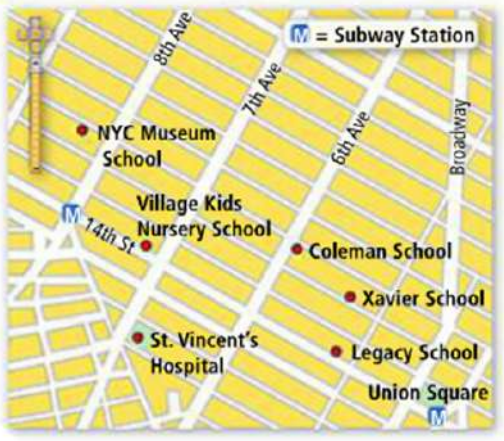
14. y = _____

15. _____

Reading Maps **For Exercises 9 and 10, use the map of a part of Manhattan.**

9. Which school is equidistant from the subway stations at Union Square and 14th Street? How do you know?

10. Is St. Vincent's Hospital equidistant from Village Kids Nursery School and Legacy School? How do you know?



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In your own words, define the following:

- equidistant
- perpendicular bisector
- segment

Sequence It!

Each table has two sets of cards, in 2 different colors.

1. Separate the cards based on color.

2. Taking turns, try to place the cards in a logical sequence that justifies the triangles being congruent.

Only sequence the cards for one color at a time.

Review and Catch up

G.CO.9 How do I prove theorems about perpendicular bisectors?

G.CO.8 How do I prove that two triangles are congruent?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 11 Lesson 3

1. Warm-up
2. Review
3. Quiz G.CO.8 and G.CO.9
4. Closure

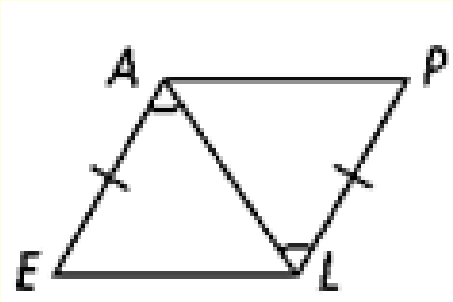
65

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Warm-up: Answer the following questions.

Warm-Up #1:

Can you prove the two triangles congruent? If so, write the congruence statement and name the postulate you would use. If not, write not possible and tell what other information you would need.



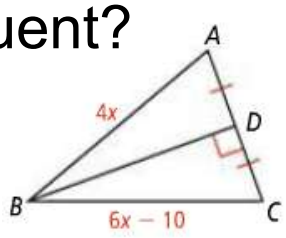
Warm-Up #2:

Draw and label three pairs of triangles to illustrate the Side-Side-Side, Angle-Side-Angle, and Side-Angle-Side Postulates. One pair of triangles should share a common side. The figures should provide enough information to prove that they are congruent. Write the congruence statements for each pair.

Whiteboard Review!

1. Are the two triangles congruent?

If so, by what postulate?



2. Find the value of x.

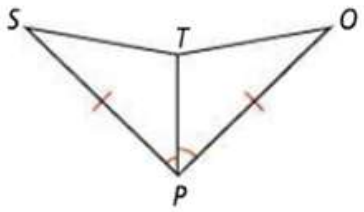
3. Find the length of BC.

G.CO.8 and G.CO.9 Quiz!!

Check Point Quiz Name_____
Geometry 1: Triangles Hour _____
G.CO.8

G.CO-8. **Learning Target:** *I can explain which series of angles and sides are essential in order to show congruence through rigid motions.*

1. Which of the following can be used to justify the statement $\Delta STP \cong \Delta OTP$?



A). SSS B). AAS C). SAS D). ASA

2. Fill in the blanks for the proof below.

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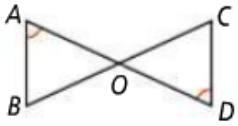
Prove: $\triangle AOB \cong \triangle DOC$



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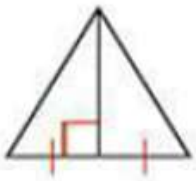
3. State the postulate you can use to prove the triangles are congruent. If you do not have enough information, *write not enough information.*

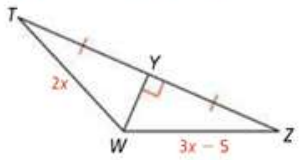
_____



Check Point Quiz Name_____
Geometry 1: Triangles Hour _____
G.CO.9

G-CO.9. *I can prove the following theorem: points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*

Use the diagram below for questions 1-3.



1. What is the relationship between $\overline{WY}$ and $\overline{TZ}$?

_____

_____

2. What is the value of x? _____

3. Find WZ. _____

4. A park ranger wants to build a hot dog stand equidistant between the two points shown below. Draw a construction of possible locations and explain why these locations would be suitable.

Explanation: _____

_____

G.CO.10 How do I find the angle measurements for triangles?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 11, Lesson 4

1. Warm-up
2. Notes: Triangle angles
3. ICA
4. Closure

Triangle Angles

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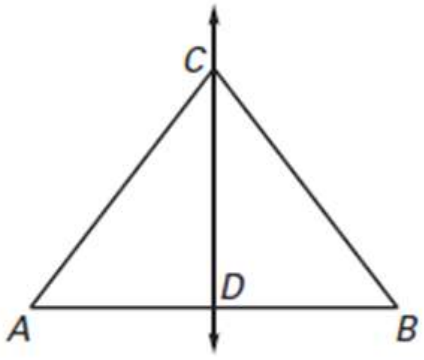
Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Warm-up: Answer the following questions.

Use the diagram shown. $\overleftrightarrow{CD}$ is the perpendicular bisector of $\overline{AB}$.

1. What is the relationship between AD and AB?
2. What is the relationship between $\angle ADC$ and $\angle BDC$?
3. What is the relationship between AC and CB? Explain.
4. *True or False?* Because $\overleftrightarrow{CD}$ is the perpendicular bisector of $\overline{AB}$, $\overline{AC} \cong \overline{AD}$.

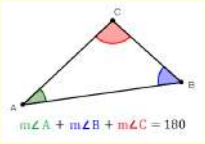


Quick Demo:

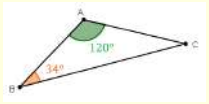
Exploring the sum of the angles of a triangle.

Triangle Sum Theorem

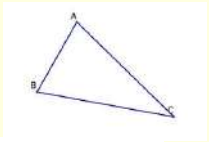
The angles of a triangle always add to 180.



Ex 1:



Ex 2:

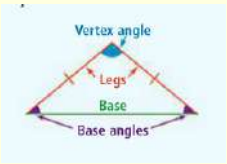


In $\triangle ABC$, $m\angle A = x$, $m\angle B = 2x + 2$, and $m\angle C = 3x + 4$.

What is the value of x?
Find the measure of each angle.

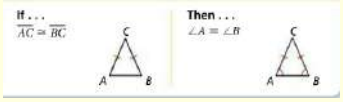
Isosceles Triangle

A triangle with two congruent sides

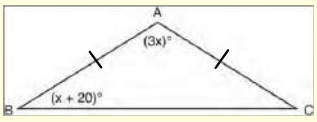


Isosceles Triangle Theorem

If 2 sides of a triangle are congruent, then the angles opposite those sides are congruent.



Ex:



Find the value of x.

Left-Side Practice!

On the left-side of your Interactive Notebook, number from 1-8.

Each group will start with a Rotation.

You will have 4 minutes to complete the problem.

Show all your work on your left-side.

Warm-Up:

1.
2.
3.
4.
5.
6.
7.
8.

Closure:

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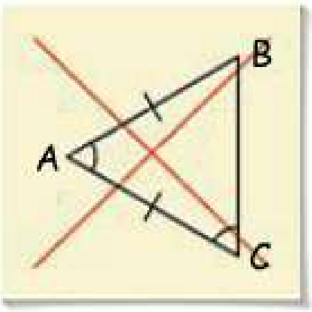
Error Analysis Claudia drew an isosceles triangle. She asked Sue to mark it. Explain why the marking of the diagram is incorrect.



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