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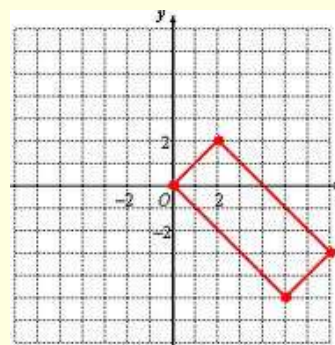
Week 18, Lesson 1

1. Warm Up
2. TI-NSpire Activity
3. Unit Review

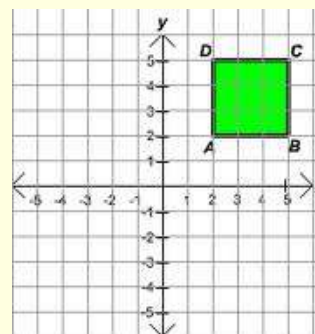
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Warm Up:

1. Given the quadrilateral at the right, what would you need to prove that it is a rectangle?

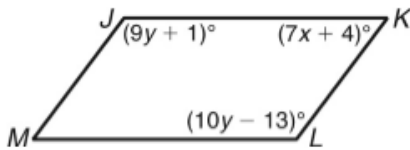


2. Given the quadrilateral at the right, what would you need to prove that it is a square?



G-CO.11 Learning Target: *I can prove theorems about parallelograms.*

1. JKLM is a parallelogram. Solve for x and y. (Show all work!) Describe what properties you used.



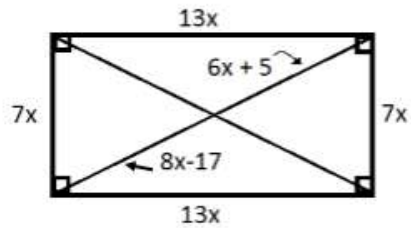
y = _____

Describe the property used to solve for y:

x = _____

Describe the property used to solve for x:

2. Use the figure to answer the questions below.



Part A: Give the most specific name for the quadrilateral above. What property identifies it as this shape?

Shape? _____

Explanation _____

Part B: Solve for x.

x = _____

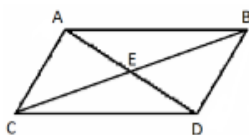
Part C: Find the length of the quadrilateral's shorter sides.

length = _____

3. Complete the steps of this proof using the below diagram.

Given: Parallelogram $ABCD$

Prove: $\angle C \cong \angle B$



Statements	Reasons
1. Parallelogram $ABCD$	1. ?
2. $\overline{AB} \parallel \overline{CD}$	2. ?
3. $\angle CAD \cong \angle BDA$ and $\angle CDA \cong \angle BAD$	3. ?
4. $\overline{AD} \cong \overline{AD}$	4. ?
5. $\triangle CAD \cong \triangle BDA$	5. ?
6. $\angle C \cong \angle B$	6. ?

Reason 1

Reason 2

Reason 3

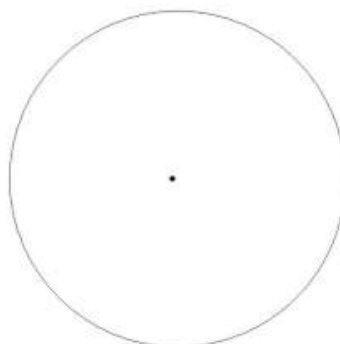
Reason 4

Reason 5

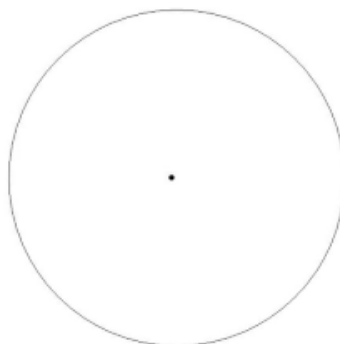
Reason 6

G-CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

4. Use a compass and straightedge to inscribe a regular hexagon in the circle below. **Label all vertices of the hexagon.** Leave all your construction marks.

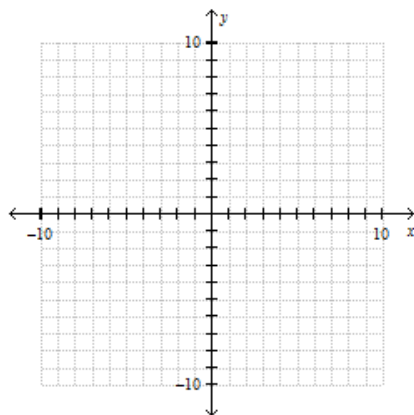


5. Use a compass and straightedge to inscribe a square into the circle below. **Label all vertices of the square.** Leave all construction marks.



G-GPE.4 *Use coordinates to prove simple geometric theorems algebraically.*

6. The coordinates of the vertices of a quadrilateral are A (1,5), B (2,2), C (-2,0), and D (-3,3).



Part A: How long is each side of the quadrilateral? Show your work.

$\overline{AB} = \underline{\hspace{2cm}}$

$\overline{BC} = \underline{\hspace{2cm}}$

$\overline{CD} = \underline{\hspace{2cm}}$

$\overline{AD} = \underline{\hspace{2cm}}$

Part B: What are the slopes of each side of the quadrilateral? Show your work.

$\overline{AB} = \underline{\hspace{2cm}}$

$\overline{BC} = \underline{\hspace{2cm}}$

$\overline{CD} = \underline{\hspace{2cm}}$

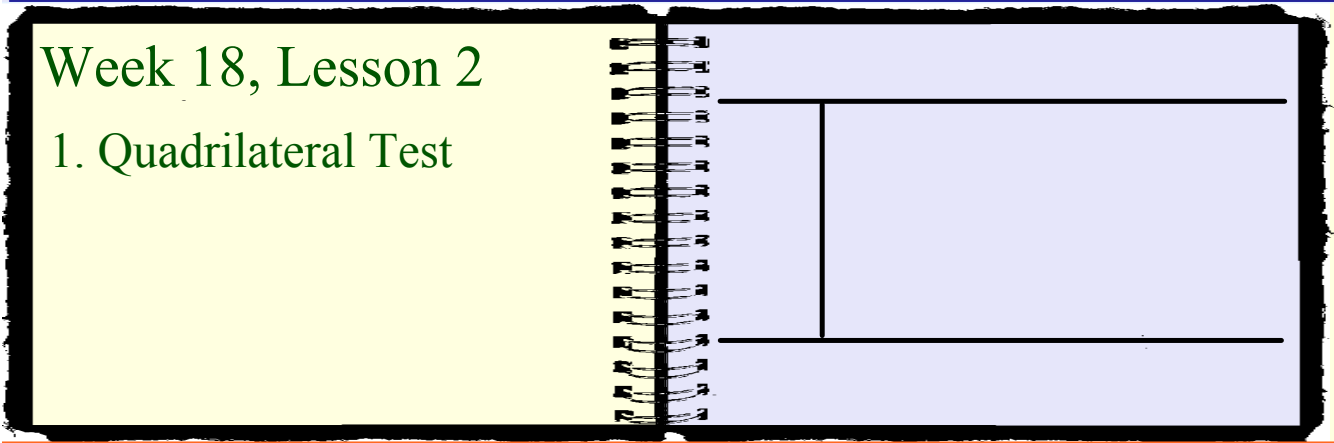
$\overline{AD} = \underline{\hspace{2cm}}$

Part C: What type of quadrilateral is it? Explain your reasoning.

Type of quadrilateral

Explanation:

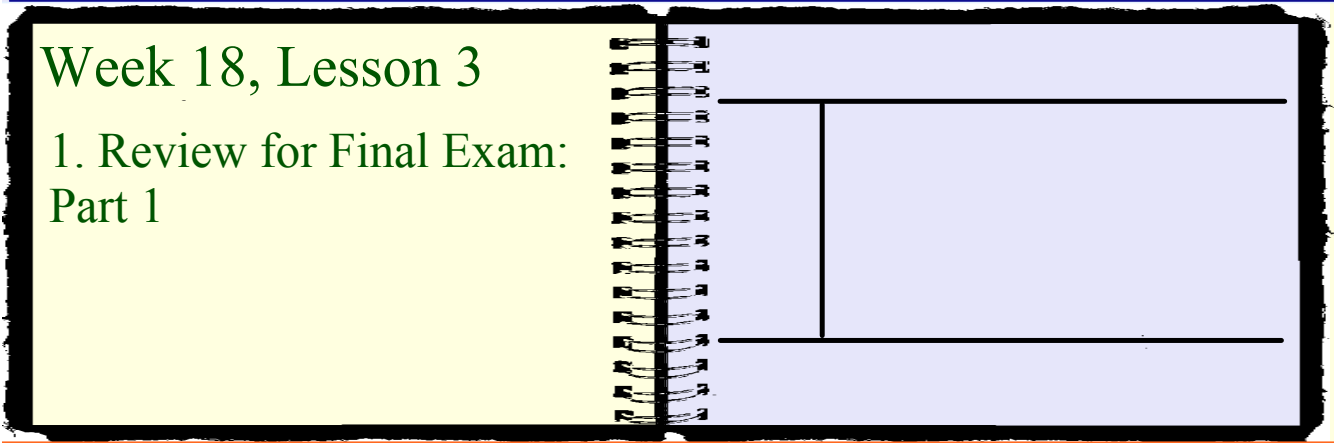
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Warm Up:

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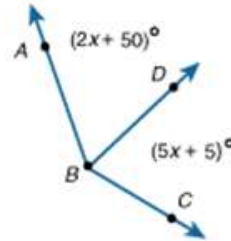
Warm Up:

Geometry 1 Final Exam Review

1. \overline{BD} bisects $\angle ABC$. Solve for x and find $m\angle ABC$.

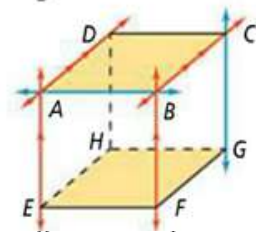
$x =$ _____
 $m\angle ABC =$ _____

Define "bisect" _____



2-3. Use the picture at the right to answer the following questions.

- (a) Define "parallel." _____
- (b) Identify two segments that are parallel. _____
- (c) Define "perpendicular." _____
- (d) Identify two segments that are perpendicular. _____
- (e) Define "skew." _____
- (f) Identify two segments that are skew. _____



4-6. Using a compass, construct the perpendicular bisector of the following segment. Then, list all of your steps.

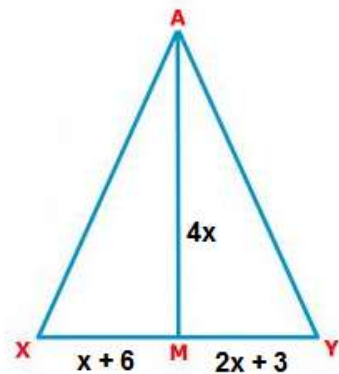
Steps:

- 1.
- 2.
- 3.
- 4.
- 5.



7. \overline{AM} is the perpendicular bisector of \overline{XY} . Find the length of \overline{AX} .

$\overline{AX} =$ _____



8. Complete the following proof.

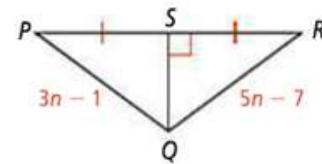
Given: $\angle A \cong \angle B$, $\angle B \cong \angle C$

Prove: $\angle A \cong \angle C$

Statements	Reasons
1. $\angle A \cong \angle B$, $\angle B \cong \angle C$	1. _____
2. $\angle A = \angle B$, $\angle B = \angle C$	2. _____
3. $\angle A = \angle C$	3. _____
4. $\angle A \cong \angle C$	4. _____

Define "transitive property": _____

9. \overline{QS} is the perpendicular bisector of \overline{PR} . Find the length of \overline{QR} .



$\overline{QR} =$ _____

10. Given the figure at the right, answer the questions that follow.

Given: line a || line b and line c || line d.

Identify the relationship between the following angles:

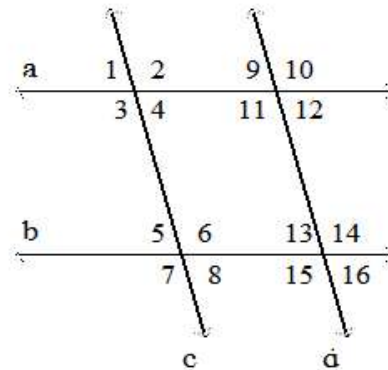
$\angle 1 \cong \angle 8$ _____

$\angle 1 \cong \angle 5$ _____

$\angle 2 \cong \angle 11$ _____

$\angle 4 \cong \angle 8$ _____

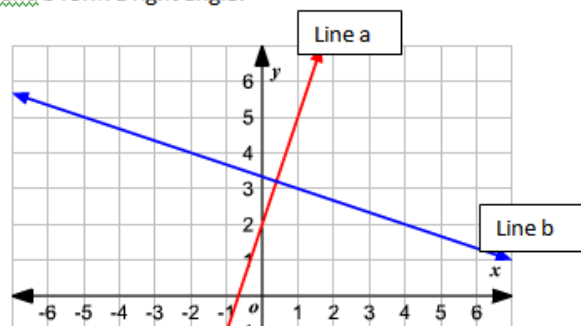
$\angle 10 \cong \angle 11$ _____



11. Find the slope of each line. Then, explain why lines a and b form a right angle.

Slopes:

Explanation:



12. For rectangle ABCD, the slope of AB is $\frac{2}{3}$. Fill in the slopes for all of its sides.

Slope of AB = ____ Slope of BC = ____ Slope of CD = ____ Slope of AD = ____

13. The coordinates of quadrilateral EFGH are E(2,6), F(3,7), G(6,4), and H(5,3).

(a) What information would you need to prove that this quadrilateral is a...

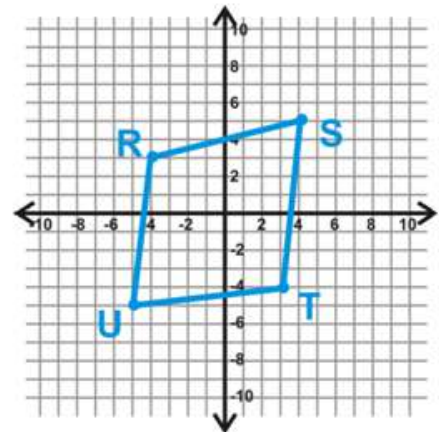
- parallelogram? _____
- rhombus? _____
- square? _____
- rectangle? _____

(b) Find the length of each side.

(c) Find the slope of each side.

(d) What is the most precise name for this quadrilateral? _____

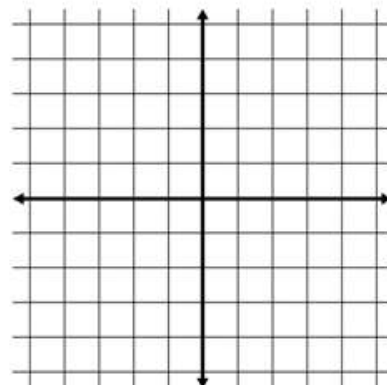
14. Given the diagram at the right, find the slope of each side.



Which sides are parallel, if any? _____
 Explain your reasoning _____

15. Is a triangle with vertices D(1,-1), E(-2, -1), and F(-2, -5) a right triangle?
 Explain your reasoning.

Yes or No _____
 Explanation _____



16. Given the 2 equations below, find the slope of each one.

$$-4x + y = -3$$

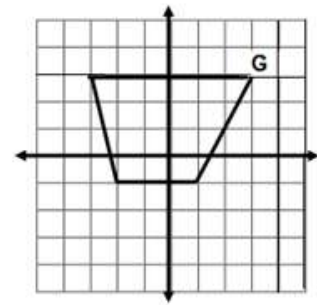
$$-2x - 8y = 1$$

Are the lines parallel, coinciding, perpendicular, or none of the above? _____

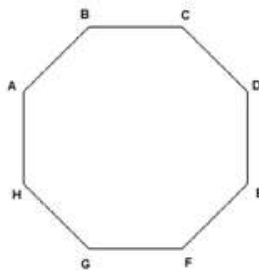
Explain your answer. _____

17. If $B(-3, -4)$ is reflected along the line $y = -1$, what are the coordinates of B' ? _____

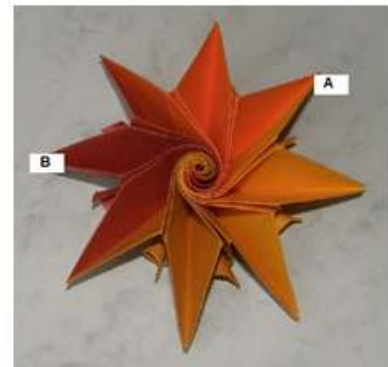
18. What are the coordinates of G after it is rotated 90° counterclockwise about the origin? _____



19. Which transformation will map point C onto point F ? _____ and _____



20. The shape at the right has rotational symmetry. How many degrees would the shape rotate so that point A maps onto Point B ? _____



21. $\triangle ABC$ is reflected over \overline{TR} to produce $\triangle A'B'C'$.
First, draw a picture to illustrate the information:

Then, choose the statement that will not necessarily be true, based on the picture:

(a) $\overline{AA'} \perp \overline{TR}$

(b) $\overline{AA'} \parallel \overline{BB'}$

(c) $\overline{AB} \cong \overline{A'B'}$

(d) $\overline{AA'} \cong \overline{BB'}$

22. A reflection over parallel lines is the same as a _____.
 Draw a picture to illustrate your answer:

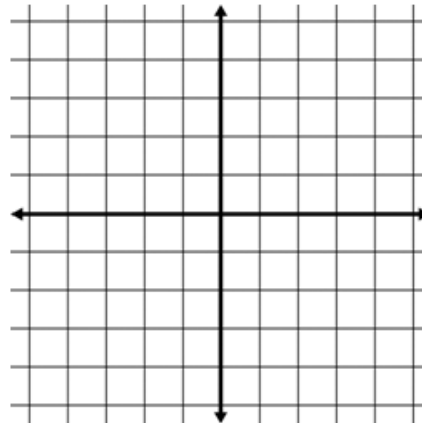
23. Given quadrilateral ABCD, graph the quadrilateral. Then, apply the transformation shown. Finally, describe the transformation.

$A(-2,1), B(3,1), C(3,4), D(-2,4)$
 Transformation: $(x, y) \rightarrow (-y, x)$

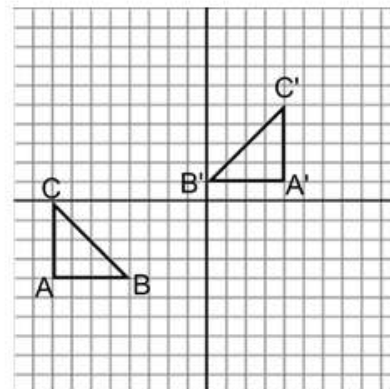
This is a _____ of _____°.

Write the coordinate rule for the following rotations:

- 90°: $(x, y) \rightarrow$ (_____)
- 180°: $(x, y) \rightarrow$ (_____)
- 270°: $(x, y) \rightarrow$ (_____)



24. Describe the sequence of transformations that maps $\triangle ABC$ onto $\triangle A'B'C'$.



25. Describe the series of transformations that maps RST onto GOP.

$R(2,3), S(5,8), T(1,6)$
 $G(-3,2), O(-8,5), P(-6,1)$

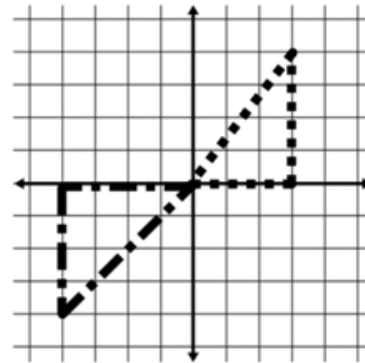
26. Describe the transformation $(x, y) \rightarrow (x, -y)$

27. $\triangle ABC$ is graphed on a coordinate plane and reflected over the y-axis. Point A' maps to point C, point C' maps to A and Point B' maps to B.
 First, draw a picture to illustrate the description.

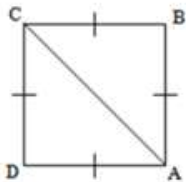
Then, fill in the blanks below:
 The triangles are _____ (right, isosceles, equilateral, OR scalene) and _____ (congruent OR not congruent).

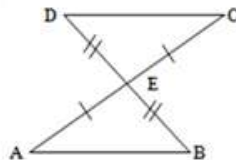
28. Are the two figures shown below congruent? Explain why or why not.
 Yes or No _____

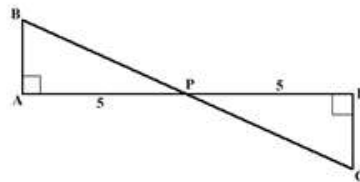
Explanation: _____



29. For each of the following pairs of triangles, identify why the two triangles are congruent.



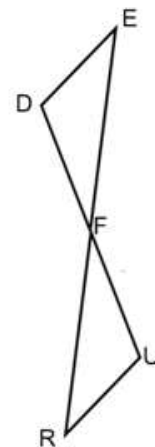




30. Complete the proof shown below.

Given: $\overline{DE} \parallel \overline{UR}$ and F is the midpoint of \overline{DU}

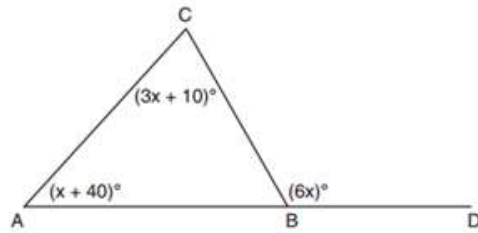
Prove: $\triangle DEF \cong \triangle URF$



Statements	Reasons
1. $\overline{DE} \parallel \overline{UR}$	1.
2. F is the midpoint of \overline{DU}	2.
3. $\angle EDF \cong \angle RUF$	3.
4. $\angle DFE \cong \angle UFR$	4.
5. $\overline{DF} \cong \overline{UF}$	5.
6. $\triangle DEF \cong \triangle URF$	6.

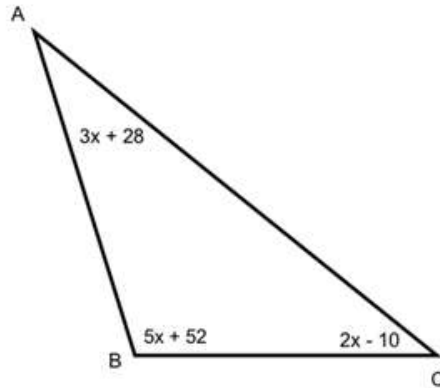
31. In the diagram at the right, find the value of x and the measure of each angle.

$x =$ _____
angle measures: _____, _____, _____



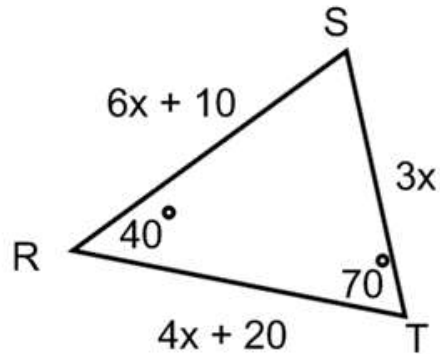
32. In the diagram at the right, find the value of x and the measure of each angle.

$x =$ _____
angle measures: _____, _____, _____



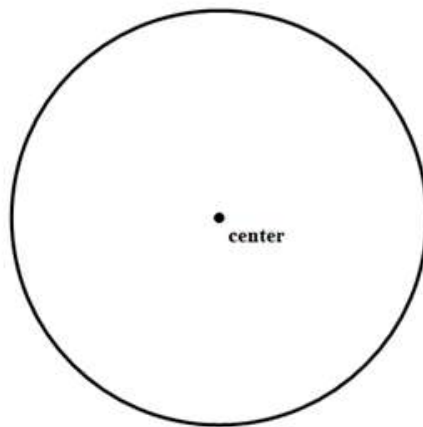
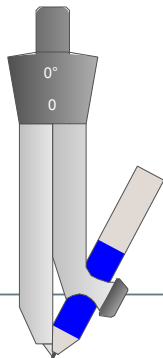
33. In the diagram below, what is the perimeter of triangle RST?

First, find the measure of the third angle: _____
 What type of triangle is it? _____
 Set two sides equal to solve for x ...

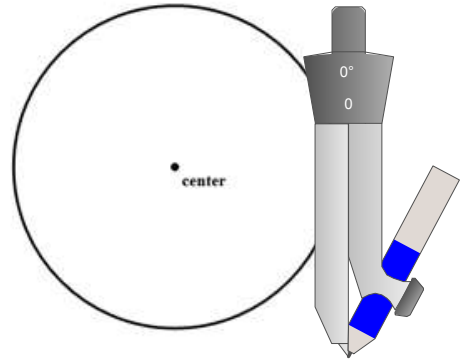


Plug in x to find the perimeter (add all sides together).

34. Using a compass, construct an equilateral triangle inscribed in the given circle.

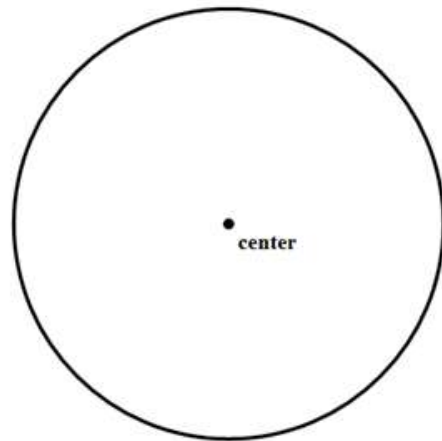


35. Using a compass, construct a hexagon inscribed in the given circle.

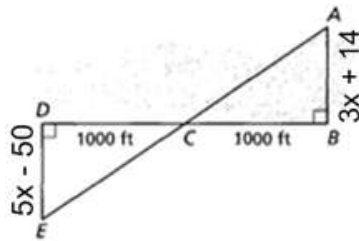


Measure the length of the radius with a ruler. Then, measure each of the sides of the hexagon. What do you notice?

36. Using a compass, construct a square inscribed in the circle below.

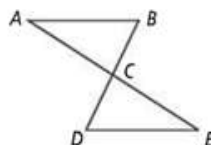


37. Use the diagram below to calculate the length of DE.



38. For the figure at the right, how are the two triangles congruent? _____
 Complete the following congruence statement: $\triangle CBA \cong \triangle$ _____.

Given: \overline{AE} and \overline{BD} bisect each other.



39. Koda places a ladder on level ground against a wall. When the base of the ladder is 6 feet from the wall, the ladder reaches to a height of 8 feet on the wall. Koda then moves the base of the ladder 2 feet closer to the wall. To the nearest foot, how high up the wall does the ladder reach?

40. Jesus walked home from school by traveling 7 blocks south and then 4 blocks west. What is the shortest distance from Jesus' home to school? Round to the nearest whole number.

41. The vertices of $\triangle DEF$ are $D(0,1)$, $E(-2, -3)$, and $F(3, -4)$. Find the vertices of $\triangle D''E''F''$ after a composition of the transformations in the order they are listed.

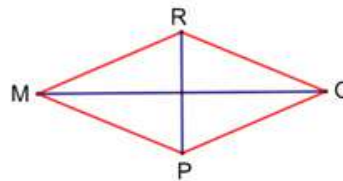
Translation 1: $(x,y) \rightarrow (x+2, y-3)$

Translation 2: $(x,y) \rightarrow (x-3, y+4)$

D'' _____ E'' _____ F'' _____

42. The endpoints of segment DE are $D(-2, -2)$ and $E(-1, -3)$ are reflected across the x-axis. When all the segments are connected, what type of quadrilateral is formed?

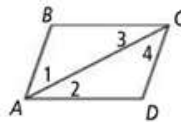
43. Given that MROP is a rhombus, if $m\angle MRO = 150^\circ$, what is $m\angle RPM$? _____



44. Complete the following proof.

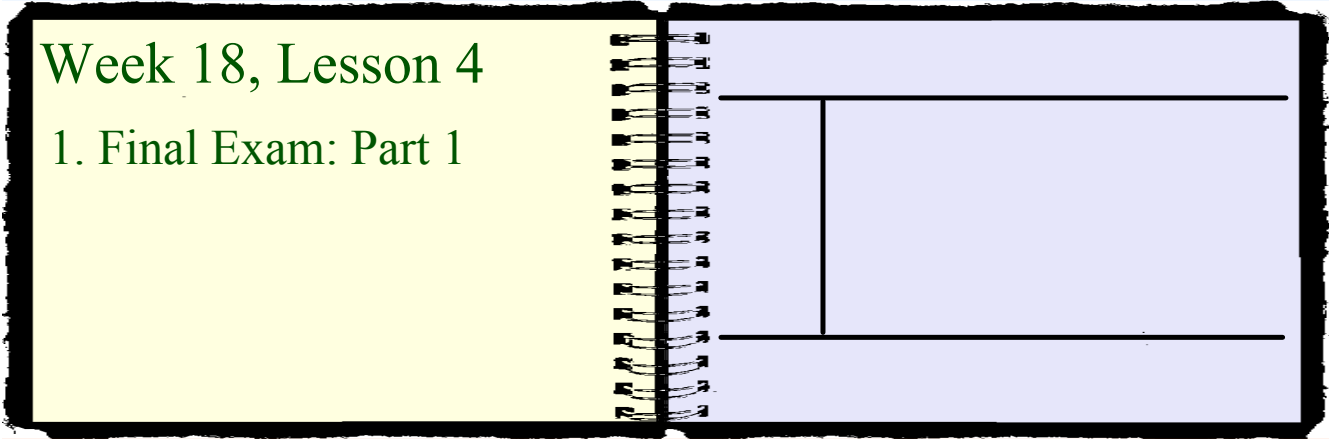
Given: $\square ABCD$

Prove: $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{DA}$



Statements	Reasons
1) $ABCD$ is a parallelogram.	1)
2) $\overline{AB} \parallel \overline{CD}$ and $\overline{BC} \parallel \overline{DA}$	2)
3) $\angle 1 \cong \angle 4$ and $\angle 3 \cong \angle 2$	3)
4) $\overline{AC} \cong \overline{AC}$	4)
5) $\triangle ABC \cong \triangle CDA$	5)
6) $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{DA}$	6)

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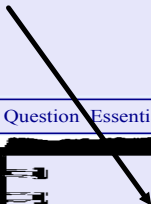
Warm Up:

EQ:

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Week , Lesson

- 1. Warm Up
- 2.
- 3.
- 4. Closure



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Warm Up: