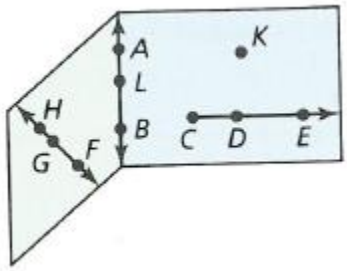
Name: _____ Period: _____

Geometry Midterm Exam Review

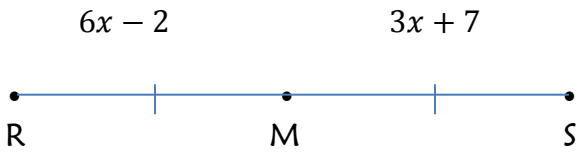
For questions #1-5, use the figure to complete each statement.

1. Name 3 collinear points _____
2. Name 2 lines _____
3. Name 2 line segments _____
4. Name 2 rays _____
5. Name a plane _____



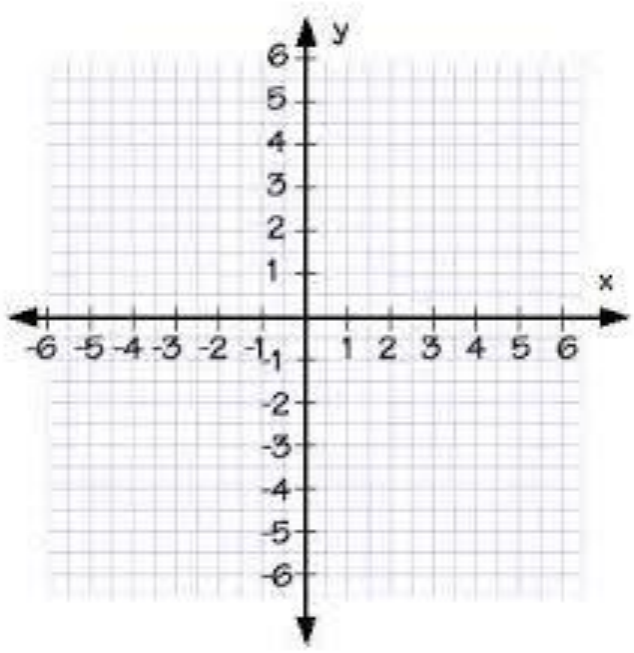
6. Given segment $\overline{AB}$. If the coordinate of one endpoint of a segment is A(-2, 6) and the coordinate of the midpoint is M(4, 1). Find the coordinate B of the other endpoint of the segment.
   **Use the midpoint formula.

7. Find RS. _____



8. Find the Perimeter and Area of polygon XYZ with vertices X(-1,3), Y(3,0), Z(-1, -2).

Perimeter _____ Area _____



9. If $\overrightarrow{BD}$ is the angle bisector of $\angle ABC$, BE is the angle bisector of $\angle ABD$, and the m $\angle DBC$ = 24°, What is the measure of $\angle EBC$? _____.

10. If the measure of an angle is three times the measure of its **supplement.** Find the measure of each angle.

11. Rewrite the following statement as a **conditional statement** (if-then form). Then write the **converse** of the conditional statement, and the **inverse** of the conditional statement. State the **truth value** of each. If the statement is false, give a **counterexample**. (8 points)

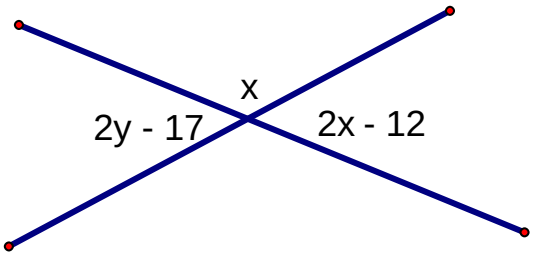
An angle measure of $91°$ *is an obtuse angle.*

12. Given: B is the midpoint of $\overline{AC}$
C is the midpoint of $\overline{BD}$

Prove: $AB = CD$

Statements	Reasons
1.	1.
2. $\overline{AB} \cong \overline{BC}$	2.
3.	3. Definition of Midpoint
4. $AB = BC$	4. Definition of Congruent Segments
5.	5. Definition of Congruent Segments
6. $BC = BC$	6.
7.	7.

13. Find the values for x and y.



14. Find each lettered angle measure.

a =

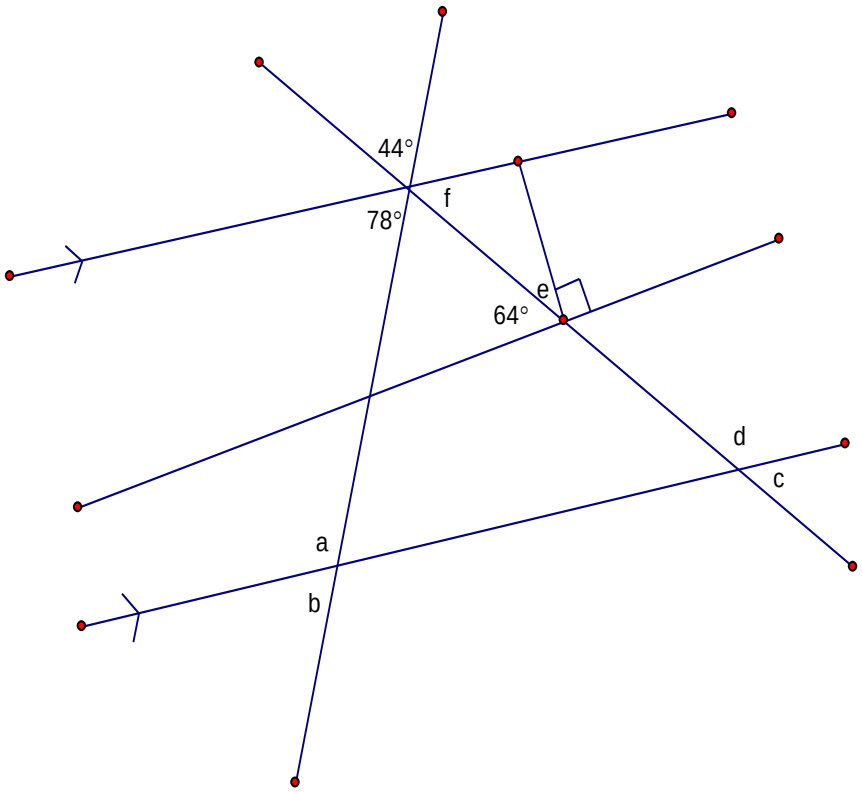
b =

c =

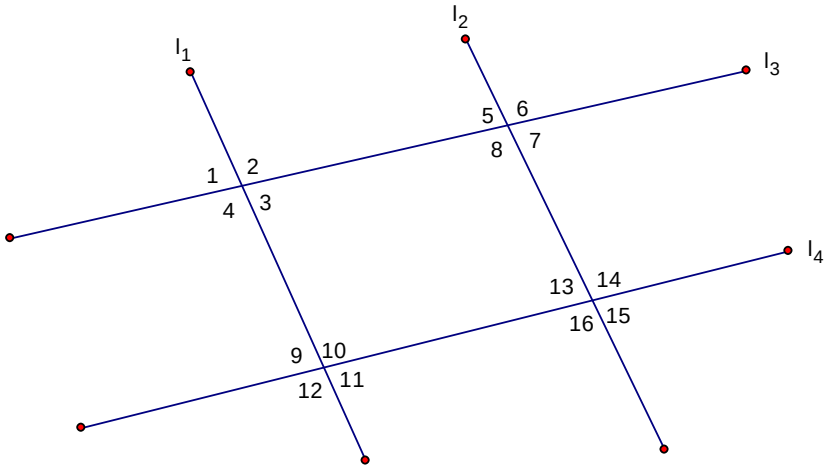
d =

e =

f =



15.



If ℓ_1 and ℓ_2 are parallel, use the following information to solve for x *and* y.

$m\angle 1 = 60°$

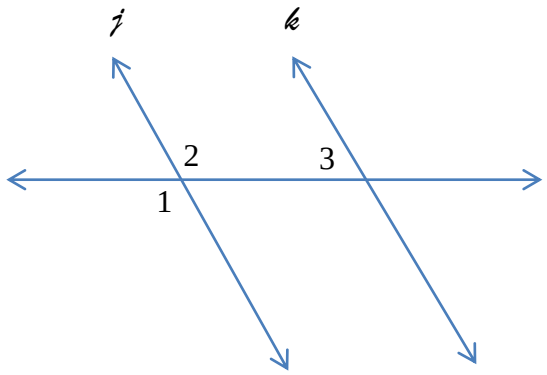
$m\angle 8 = 3x + 2y$

$m\angle 11 = 80°$

$m\angle 13 = 2x - y$

16. Given: $< 1 \; and \; < 3$ are supplementary

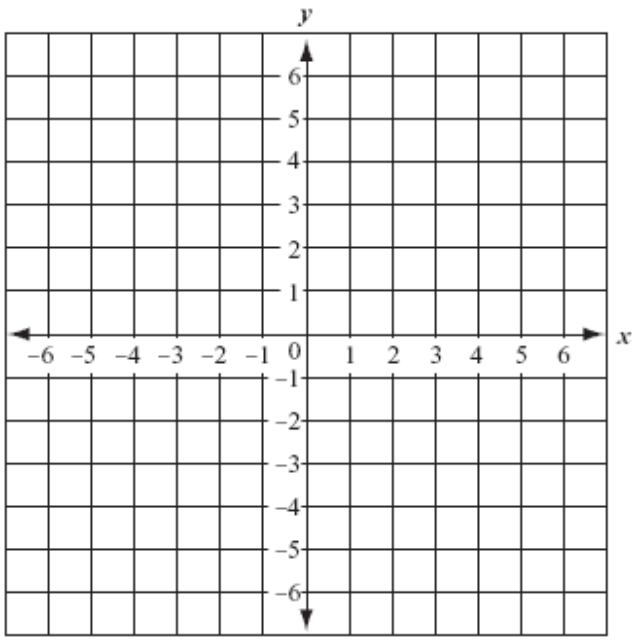
Prove: j || k



STATEMENTS	REASONS
1.	1. Given
2.	2. Definition of Vertical Angles
3. $< 1 \cong < 2$	3.
4. $< 2 \; and \; < 3$ are supplementary	4. Congruent Supplements Theorem
5.	5.

17. Graph ΔCAT with vertices C(4, 1), A(7, 3), and T(6, 4) and its image after the glide reflection.

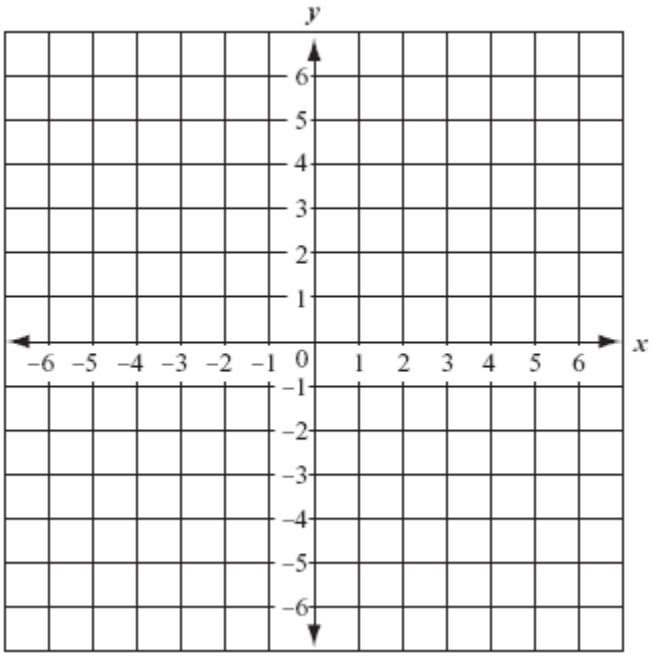
Translation: $(x, y) \rightarrow (x, y - 1)$
Reflection: over $x = 1$



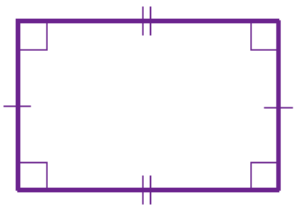
18. The vector $\langle 3, -1 \rangle$ describes the translation of $K(2x-1,\ 8)$ onto $K'(10,\ 4y-5)$. Find the values of x and y.

19. Graph quadrilateral ABCD with endpoints A(2, 2), B(4,2), C(4, 0) and D(2, 0), the line of reflection, and its image after the composition.

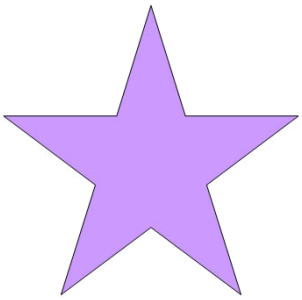
Reflection: over the line $y = -x$
Rotation: 90° about the origin



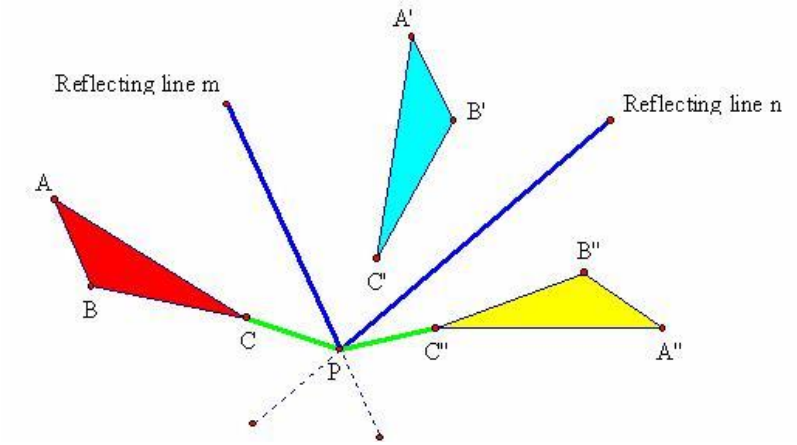
20. Does the following figure have rotational symmetry? If yes, what degree(s)?



21. Draw the lines of symmetry.

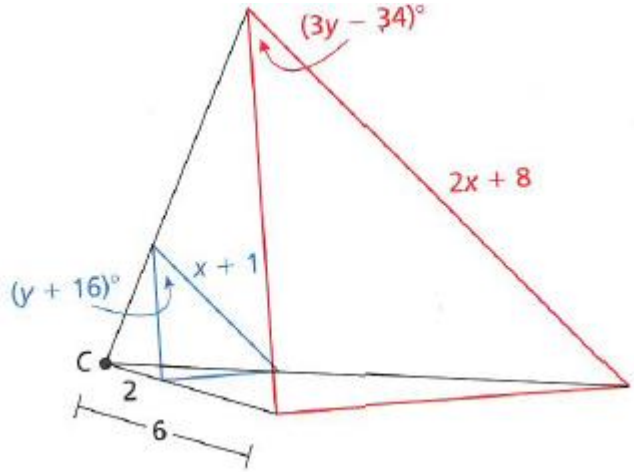


22. The acute angle of the intersecting lines is represented by $45x - 10$ and the angle of rotation about P that maps ΔABC to $\Delta A"B"C"$ is represented by $(-5x + 170)$. Solve for x. Find the measures of each angle.

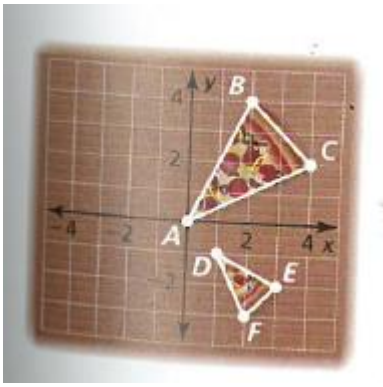


23. What is the pre-image of D'(4, -3) using the translation $\langle -8, 4 \rangle$?

24. The larger triangle is a dilation of the smaller triangle. Solve for x and y.



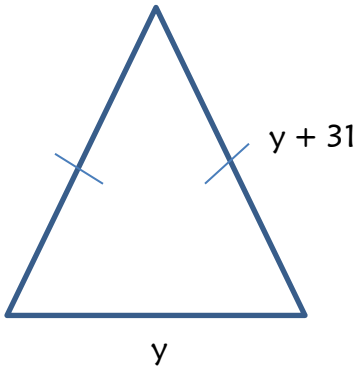
25. There is one slice of large pizza and one slice of small pizza in the box.



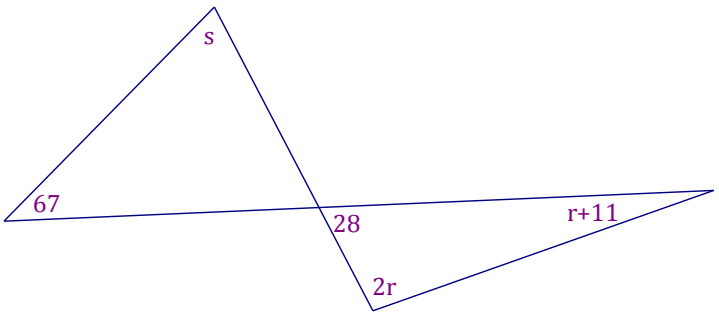
a) Describe a similarity transformation that maps pizza slice ABC to pizza slice DEF.

b) What is one possible scale factor for a medium slice of pizza? Explain.
(Hint: Use a dilation on the large slice of pizza)

26. The perimeter of the triangle is 344.



27.



28. What are the possible values for the range of x given triangle with side lengths x, 4, 15. Select all that apply.

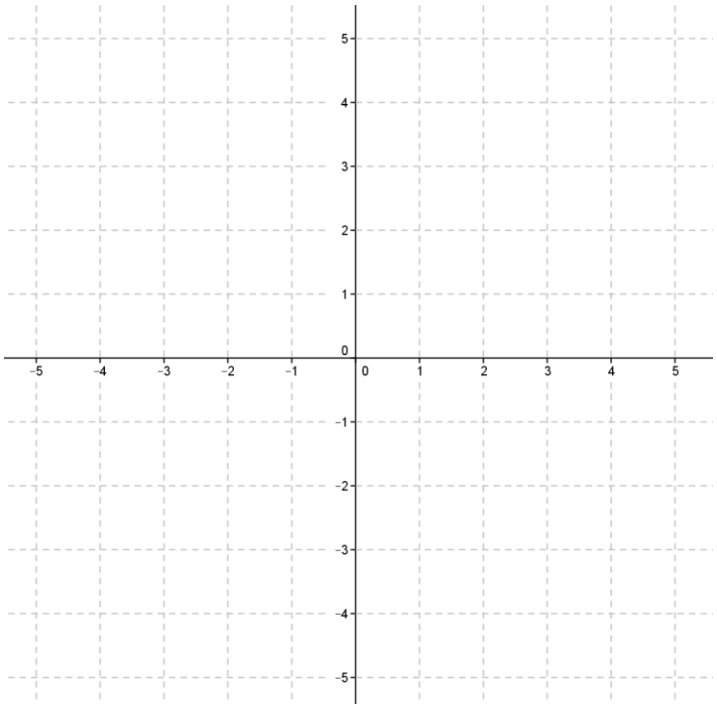
a) 11 b) 19 c) 12 d) 18.5 e) 10.5

29. Classify the triangles by **angle** with the given side lengths.

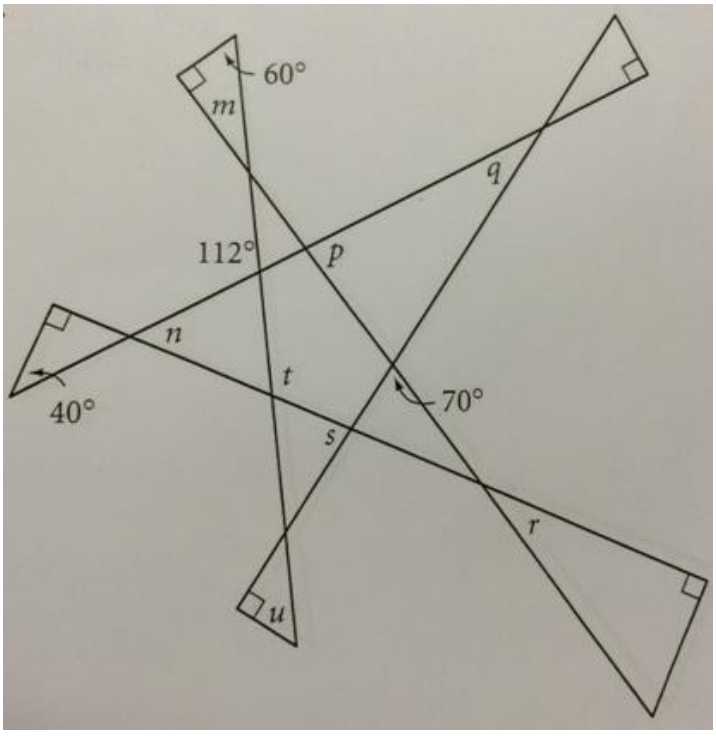
a) 12 m, 16 m, 20 m

b) 7 mm, 7 mm, 9 mm

30. Given the vertices R (0, 4), H (-2, -1) and S (4, -4). Classify the triangle by its **sides**. Is the triangle also a **right triangle**?



31. Find the values of the missing variables.



m = _____

n = _____

p = _____

q = _____

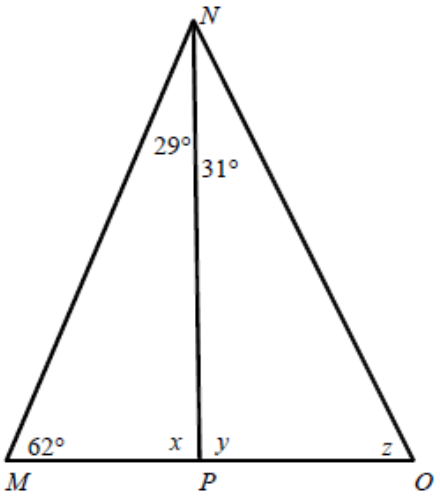
r = _____

s = _____

t = _____

u = _____

32.

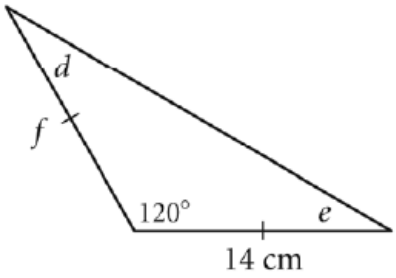


$x =$ _____

$y =$ _____

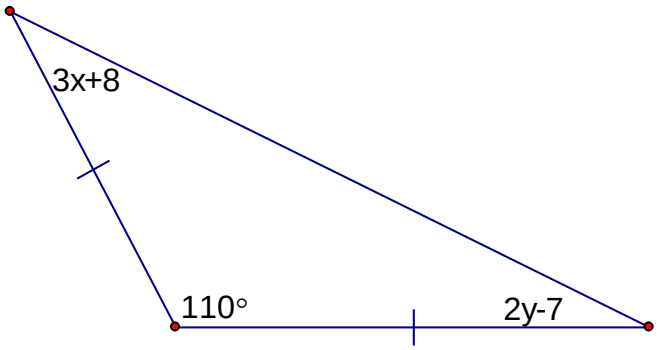
$z =$ _____

33.



$d =$ _____ $e =$ _____ $f =$ _____

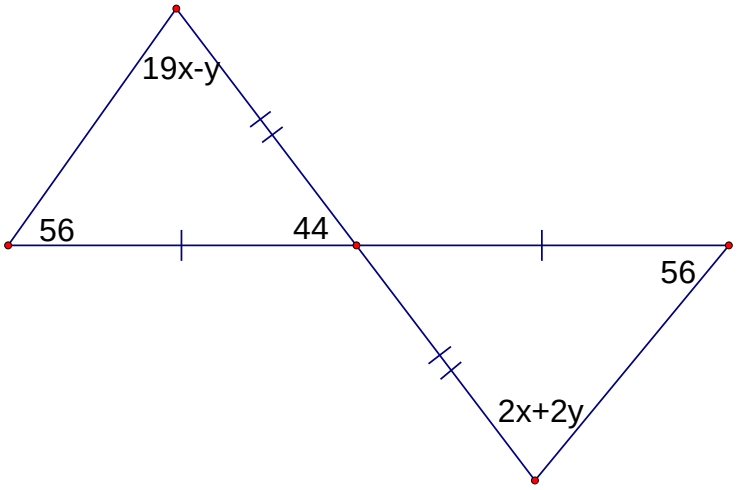
34.



$x =$ _____

$y =$ _____

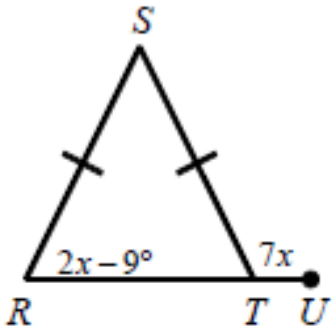
35.



$x =$ _____

$y =$ _____

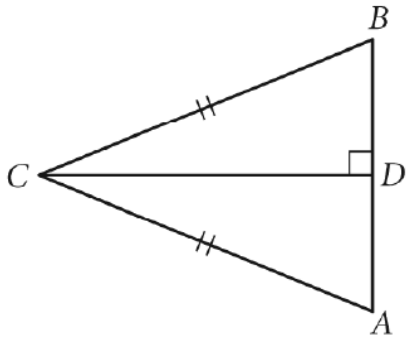
36.



$x =$ _____

37. The measure of one angle in a triangle is 3 times the measure of the third angle. The second angle is 2 times the sum of the other two angles. Find the measure of each angle of the triangle.

38.



. $m\angle A = 68°,\ AD = 13$ cm

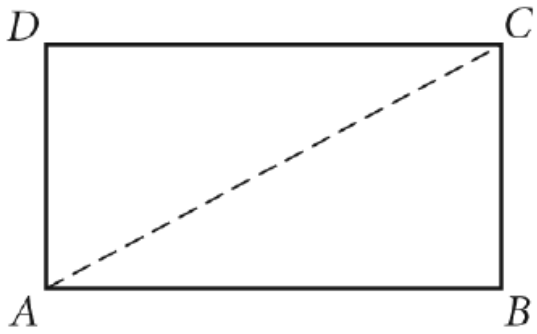
$m\angle ACD =$ ____

$AB =$ ____

Use the given information to mark the triangles and complete the congruence statement by telling which congruence theorem supports the congruence statement. If the triangles cannot be proven as congruent from the information given, write "cannot be determined."

39. $\overline{AB} \parallel \overline{CD},\ \overline{AD} \cong \overline{BC}$

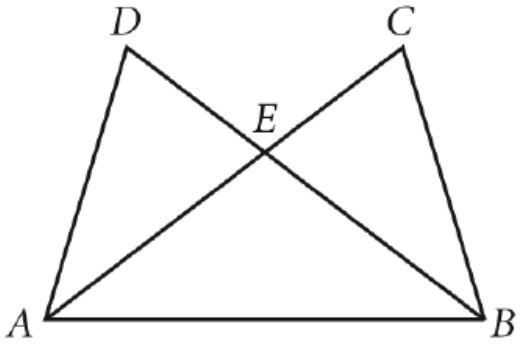
$\Delta ABC \cong \Delta$____



Theorem _____

40. $\overline{AC} \cong \overline{BD},\ \overline{AD} \cong \overline{BC}$

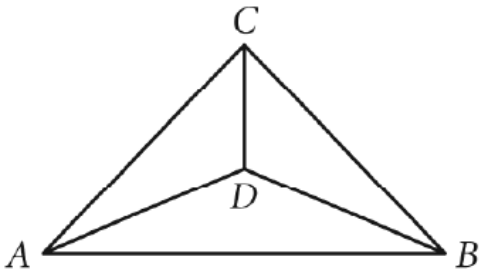
$\Delta ADB \cong \Delta$____



Theorem _____

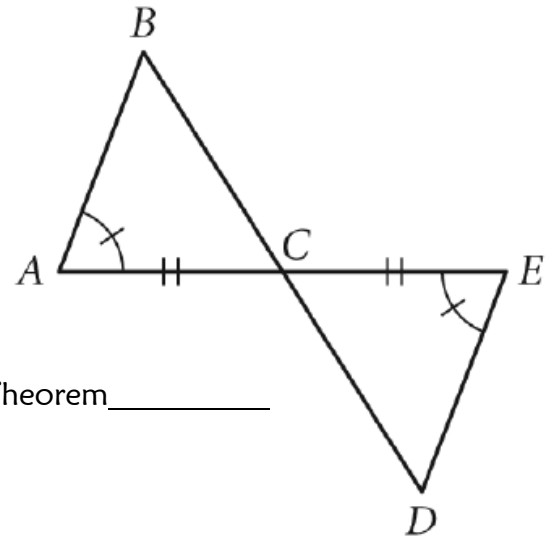
41. $\overline{CD}$ bisects $\angle C,\ \overline{AC} \cong \overline{BC}$

$\Delta ACD \cong \Delta$____



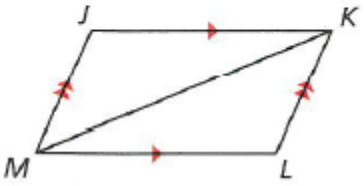
Theorem _____

42. $\Delta ABC \cong \Delta$____



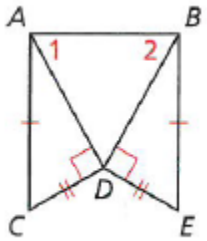
Theorem_____

43. **Given** $\overline{JK} \parallel \overline{ML}, \overline{MJ} \parallel \overline{KL}$
Prove $\triangle MJK \cong \triangle KLM$



Statements	Reasons
1.	1.
2.	2. AIA Theorem
3. $< JMK \cong < LKM$	3.
4.	4. Reflexive Property
5.	5.

44. Given: $\Delta ADC \cong \Delta BDE$
Prove: $< 1 \cong < 2$



Statements	Reasons
1.	1.
2.	2. CPCTC
3. ΔADB is an isosceles triangle.	3.
4.	4. Base Angle Theorem

45. Prove that the triangles formed by the legs of the keyboard are congruent.