

1. Translate the preimage P (5, 2) using the vector $\langle 4, -3 \rangle$

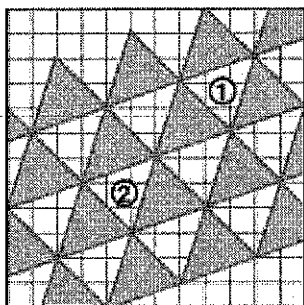
A (9, -1)

C (2, 6)

B (1, 5)

D (8, -2)

2. Steve created this design for a wall mural.



Which describes the translation from figure 1 to figure 2?

A up 3 units and right 1 unit

C up 4 units and right 4 units

B down 1 unit and left 3 units

D down 4 units and left 4 units

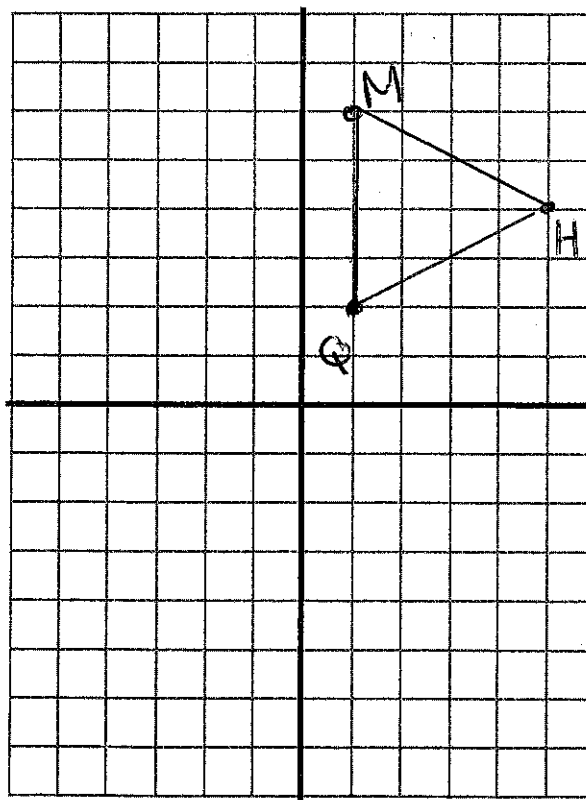
3 Find the new coordinates of $\triangle MQH$ when it is rotated 90° clockwise about the origin.

A $Q'(-2, 1)$, $M'(-6, 1)$, $H'(-4, 5)$

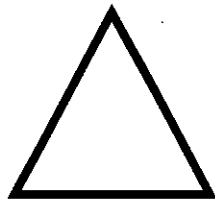
B $Q'(2, -1)$, $M'(6, -1)$, $H'(4, -5)$

C $Q'(5, 4)$, $M'(-1, 6)$, $H'(-2, 1)$

D $Q'(8, 7)$, $M'(8, 3)$, $H'(5, 4)$



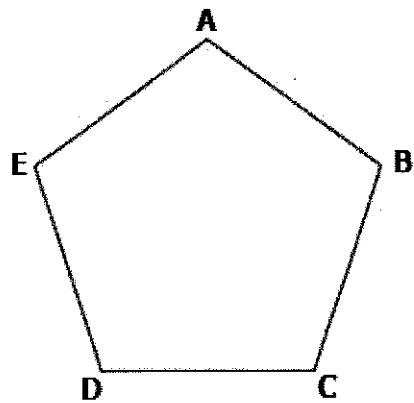
4. Does this equilateral triangle have reflectional symmetry? If so, how many lines?



- A** No reflectional symmetry. **C** Yes, 3 lines of reflection.
B Yes, 6 lines of reflections. **D** Yes, 1 line of reflection.

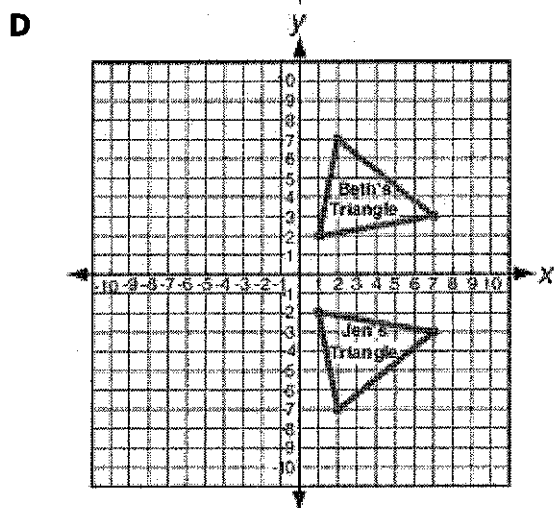
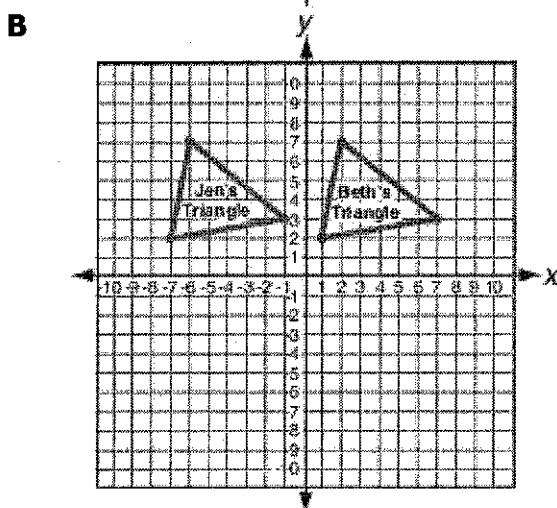
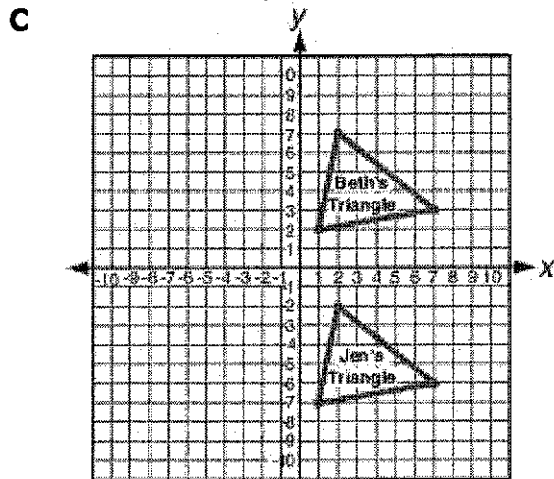
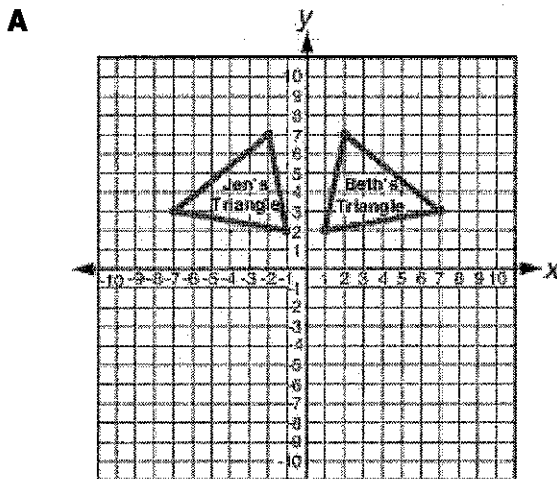
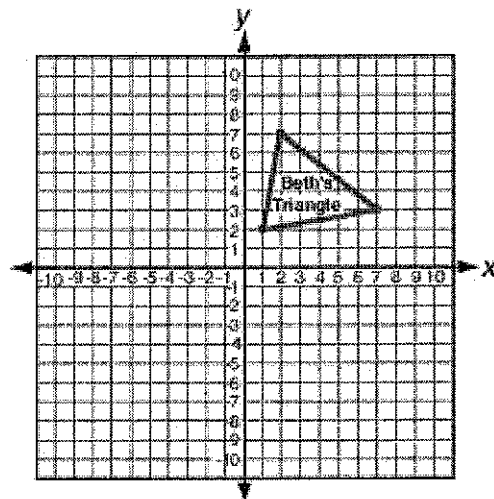
5. The pentagon shown is regular and has rotational symmetry.

What degree would map A on to C using a counter clockwise rotation?



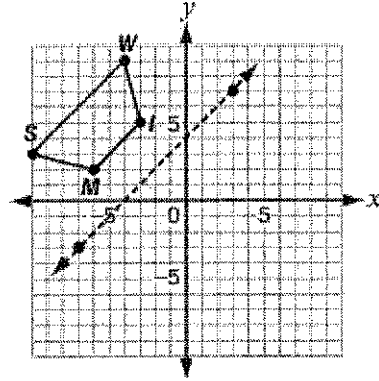
- A** 72° **C** 144°
B 216° **D** 360°

6. Jen and Beth are graphing triangles on this coordinate grid. Beth graphed her triangle as shown. Jen must now graph the reflection of Beth's triangle over the x -axis.



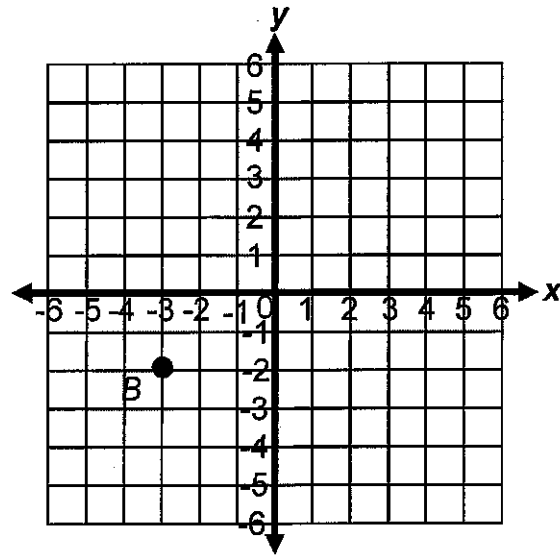
7. Trapezoid $SWIM$ is drawn on the coordinate grid.

If you reflect the trapezoid over the dashed line, what would be the new coordinates of trapezoid $S'W'I'M'$?



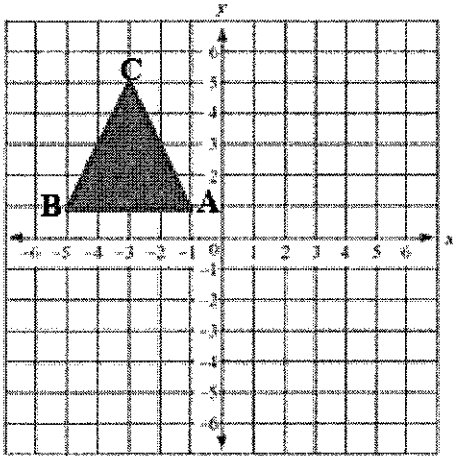
- A $S'(-1, -6), W'(5, 0), I'(1, 1), M'(-2, -2)$
- B $S'(-4, -3), W'(2, 3), I'(3, -2), M'(0, -5)$
- C $S'(1, -6), W'(-5, 0), I'(5, -3), M'(2, -6)$
- D $S'(3, 5), W'(-4, 9), I'(-3, 5), M'(-6, 2)$

8. What would be the image point B' after a reflection over the line $y = 2$ and a translation 4 units right and 2 units down?



- A $(1, 4)$
- B $(11, -4)$
- C $(1, -4)$
- D $(1, 0)$

9. Translate the triangle 5 units right and 3 units down, then reflect it over line $x = 2$

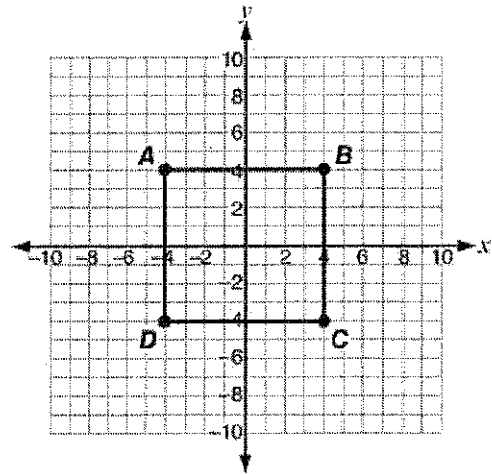


- A $A'(4, 3), B'(0, 3), C'(2, 2)$ C $A'(-1, -1), B'(-5, -1), C'(-3, -5)$
- B $A'(0, -2), B'(4, -2), C'(2, 2)$

10. Square $ABCD$, shown at the right, is translated up 3 units and right 2 units to produce rectangle $A'B'C'D'$.

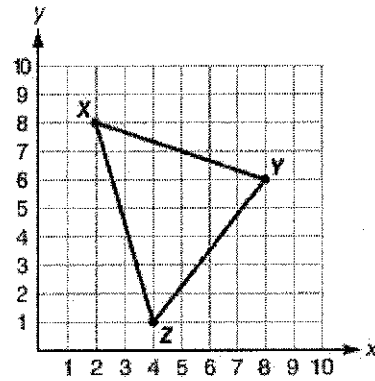
Which statement is true?

- A $\overline{AB} \parallel \overline{A'B'}$ and $\overline{BC} \parallel \overline{B'C'}$
- B $\overline{AB} \perp \overline{A'B'}$ and $\overline{BC} \perp \overline{B'C'}$
- C $2AB = A'B'$ and $3BC = B'C'$
- D $AB + 2 = A'B'$ and $BC + 3 = B'C'$

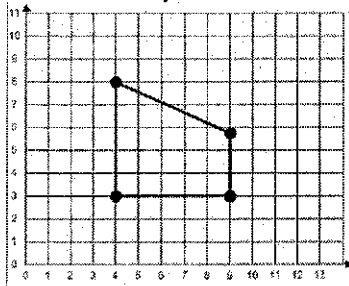


20. What is the perimeter of the triangle shown below?

- A 18
- B 20
- C 52
- D 134



21. What is the perimeter and area of the trapezoid to the nearest tenth?

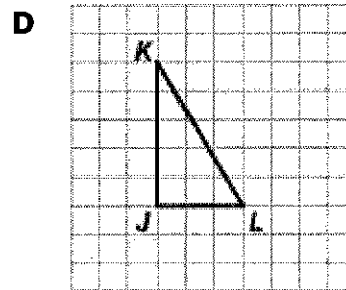
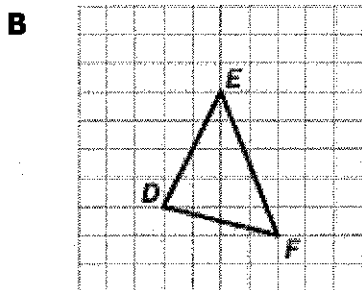
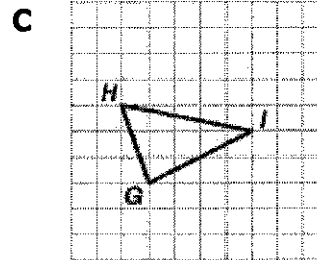
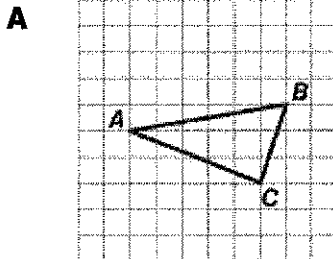
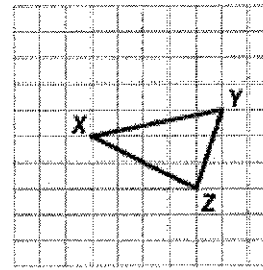


- A 25.6 u, 20 u²
- B 18.4 u, 20 u²
- C 18.4 u, 25 u²
- D 25.6 u, 25 u²

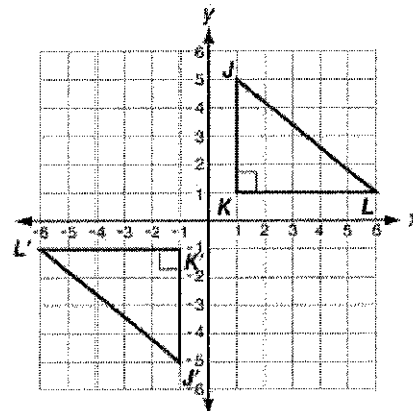
22. How could a student determine that a triangle and its transformed image are congruent?

- A They are congruent if and only if the triangles are right triangles.
- B They are congruent if and only if the transformed figure was not rotated.
- C They are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
- D They are congruent if and only if corresponding pairs of sides are similar and corresponding pairs of angles are similar.

23 Which diagram shows a triangle drawn so that it is congruent to $\triangle XYZ$?



25. Triangle JKL is rotated to become triangle $J'K'L'$. Without the use of any measurement devices, which could be used to prove that triangle JKL is congruent to triangle $J'K'L'$?



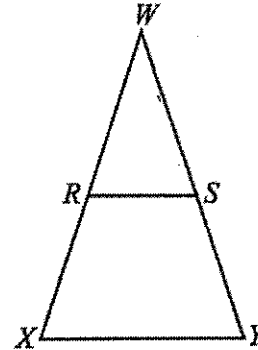
- A SAS because both are right triangles, JK is congruent to $J'K'$, and KL is congruent to $K'L'$
- B ASA because both are right triangles and JL is congruent to $J'E'$
- C SAS because both are right triangles, JL is congruent to $J'E'$, and JK is congruent to $K'L'$
- D ASA because both are right triangles, angle J is congruent to angle L' , and JK is congruent to $K'L'$

24. Are these lines parallel or perpendicular, why?
 A line through points (3, 4) and (5, 5) and another line through (2,1) and (6,3).

- A Parallel, same slopes.
- B Perpendicular, same slopes.
- C Perpendicular, opposite reciprocal slopes
- D Parallel, opposite reciprocal slopes.

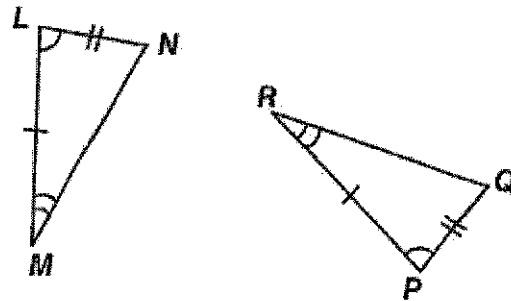
26 $\square \square$ and XY are parallel.

What similarity theorem proves $\Delta WXY \sim \Delta WRS$



- A $SSS \sim$
- B $AA \sim$
- C The triangles are not similar
- D $SAS \sim$

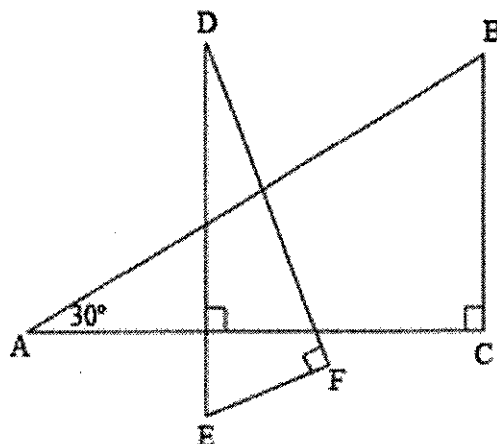
27. Triangle PRQ is rotated, reflected, and translated to yield triangle LMN.
 Which statement proves that the two triangles are congruent?



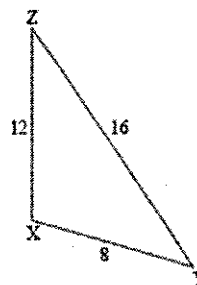
- A $\overline{PQ} \cong \overline{LN}$, and $\overline{PR} \cong \overline{LM}$ (SS).
- B $\angle P \cong \angle L$, and $\angle M \cong \angle R$ (AA).
- C $\overline{PQ} \cong \overline{LN}$, $\overline{PR} \cong \overline{LM}$, and $\angle P \cong \angle L$ (SAS).
- D $\overline{PQ} \cong \overline{LN}$, $\overline{PR} \cong \overline{LM}$, and $\angle R \cong \angle M$ (SSA).

28. In the diagram below, what is the measure of $\angle E$ if the triangles $\triangle ABC$ and $\triangle DEF$ are similar?

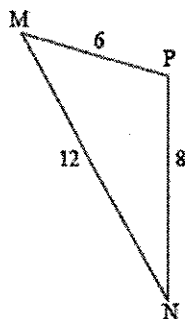
- A 30°
- B 60°
- C 90°
- D 70°



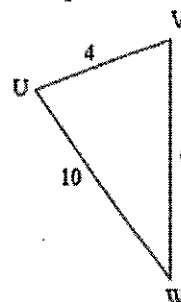
29. Which of the triangles below is similar to $\triangle XYZ$?



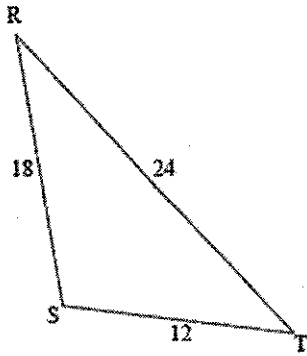
A



C



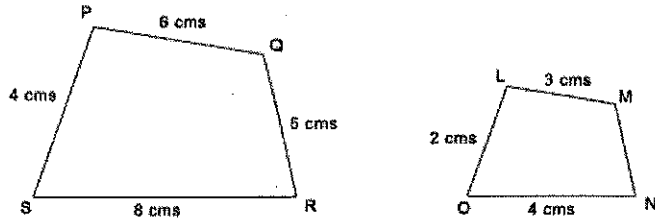
B



D

All of the above

30. What proportional statement prove these two trapezoids similar?



A

$$\frac{PQ}{ON} = \frac{QR}{MN} = \frac{PS}{LO} = \frac{SR}{LM}$$

C

$$\frac{PQ}{LM} = \frac{QR}{MN} = \frac{SR}{ON} = \frac{PS}{LO}$$

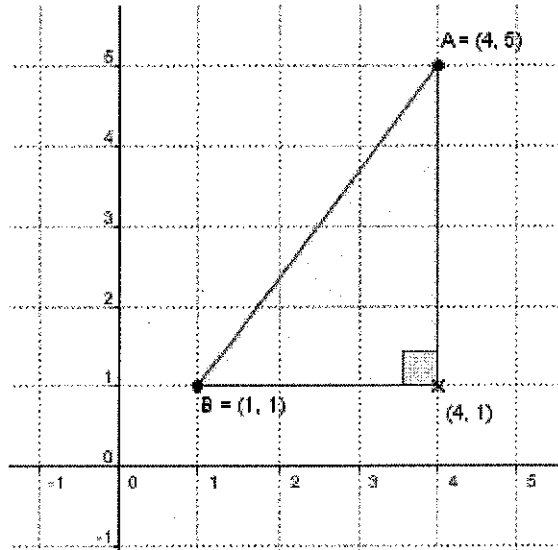
B

$$\frac{MN}{PQ} = \frac{QR}{NO} = \frac{LO}{RS} = \frac{SP}{LM}$$

D

$$\frac{PQ}{PQ} = \frac{QR}{QR} = \frac{PS}{PS} = \frac{SR}{SR}$$

31. Where is the center of the circle circumscribed about the triangle?



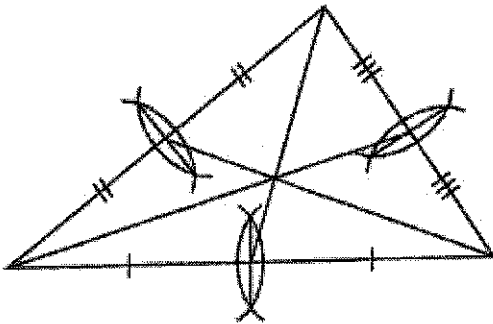
A Inside the triangle, (3, 2.5)

- B** On the hypotenuse, (2.5, 3)
- C** Outside the triangle, (1,4)
- D** On the triangle, (4,1)

32. Mary Ann drew two lines on the chalkboard. Her two lines lie in the same plane but share no common points. Which could be a description of Mary Ann's drawing?

- | | |
|----------------------------------|------------------------------------|
| A A set of skew lines | C A set of adjacent rays |
| B A set of parallel lines | D A set of collinear points |

33. Greg used a compass and straight edge to draw the construction below.



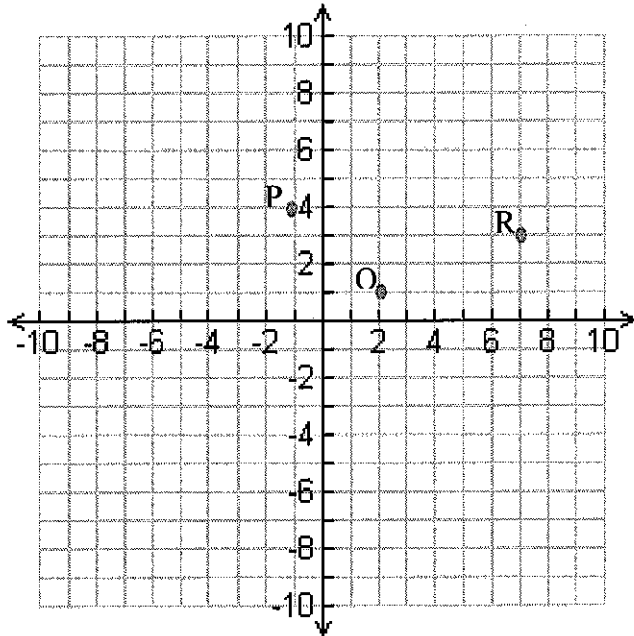
Which of these is shown by this construction?

- A** The medians of a triangle are concurrent.
- B** The altitudes of a triangle are concurrent
- C** The angle bisectors of a triangle are concurrent

D The perpendicular bisectors of a triangle are congruent

34. Points P, Q, and R are shown below. If these points are all vertices of a parallelogram then which point would represent the coordinates of the fourth vertex of parallelogram PRQS?

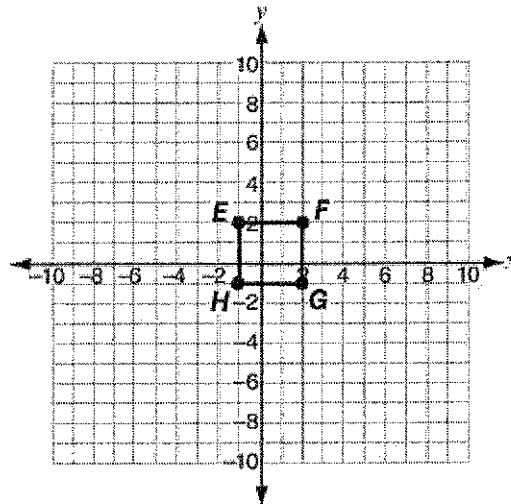
- A (4,6)
- B (8,-1)
- C (5,2)
- D (9,1)



35. Square EFGH is shown below. A dilation of 2 centered at (2,2) is performed. The resulting square is labeled E'F'G'H'.

What is the length of $\overline{F'G'}$?

- A 2 units
- B 3 units
- C 5 units
- D 6 units



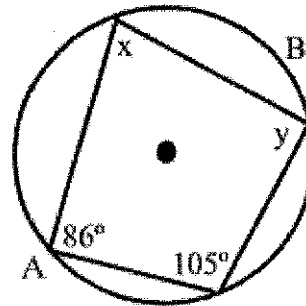
- 36.** Which of the following is unnecessary to prove that the 2 base angles of an isosceles triangle are congruent?
- A** The angle sum theorem for triangles **C** The definition of an angle bisector
B SAS postulate **D** The definition of congruent triangles
- 37** Which of the following is necessary to prove that a triangle's exterior angle equals the sum of the two remote interior angles?
- A** The definition of complementary angles **C** The definition of supplementary angles
B The definition of an angle bisector **D** The definition of congruent triangles
- 39** When proving the exterior angle sum theorem, the first step is to show that an exterior angle of a polygon and an interior angle of a polygon add together to equal 180 degrees. Which angle classification justifies this step?
- A** Vertical angles **C** Complementary angles
B Corresponding angles **D** Linear pair of angles
- 38** A segment connects the midpoints on two sides of a triangle. What is true about this segment?
- A** It is always horizontal and half the length of each side **C** It is always parallel to the third side and half as long as the third side
B It is always perpendicular to the two sides it joins and forms an isosceles triangle with the portions of the sides above it **D** It is always half the length of those two sides and parallel to the third

40 Which statement correctly completes the sentence below?

If two distinct pairs of angles in two triangles are congruent, then _____.

- A the pair of included sides must also be congruent and the triangles must be congruent
- B the pair of included sides must also be congruent and the triangles must be similar
- C the third pair of angles must also be congruent and the triangles must be congruent
- D the third pair of angles must also be congruent and the triangles must be similar

41 Find the values of x and y .



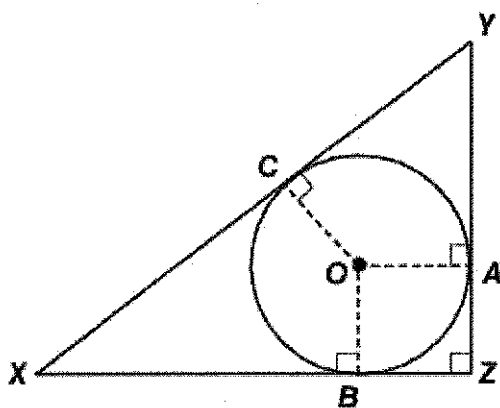
A $x = 105^\circ$
 $y = 86^\circ$

B $x = 75^\circ$
 $y = 94^\circ$

C $x = 94^\circ$
 $y = 75^\circ$

D $x = 86^\circ$
 $y = 105^\circ$

42 The dotted lines in the figure below show how Jenny inscribed circle O in right triangle XYZ on a practice test.



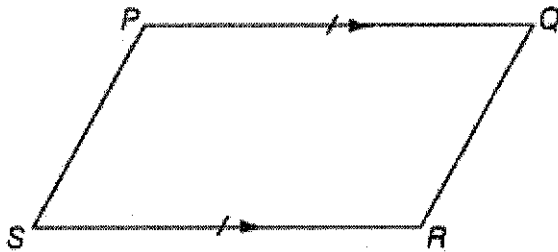
What should Jenny have done differently to answer the question correctly?

- A** Jenny should have used the altitudes of the triangle to find the incenter.
- B** Jenny should have constructed an inscribed circle. Circle O is circumscribed.
- C** Jenny should have used the bisectors of angles X , Y , and Z to find the incenter.
- D** Jenny should have put points A , B , and C at the midpoints of the sides of the triangle.

43 Which could be the coordinates of the fourth vertex of rectangle if the other coordinates are $X(-1,5)$, $Y(6,-2)$, and $Z(3,-5)$?

- | | |
|-------------------|-------------------|
| A $(-5,3)$ | C $(0,-2)$ |
| B $(-4,2)$ | D $(2,8)$ |

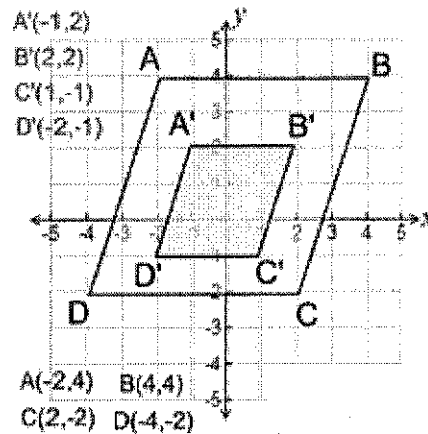
- 44 To the right of this quadrilateral are three statements about the figure.



- I. $\angle P \cong \angle Q$
 II. $\angle P \cong \angle R$
 III. $\overline{PR} \cong \overline{QS}$

Which statement can be proven?

- A I only
 B II only
 C I and II
 D II and III
45. What is true about parallelogram ABCD and its image A'B'C'D' (specifically its sides and angles)?



- A The scale factor is 2, the angles are double, and the sides are double.
 B The scale factor is $\frac{1}{2}$, the angles are $\frac{1}{2}$ the measures, and the sides are $\frac{1}{2}$ the measures.
 C All sides are congruent and angles are proportional.
 D All sides are proportional and angles are congruent.

46. Line h has the equation $y = \frac{1}{4}x + 5$. Line g includes the point $(8, -3)$ and is **parallel** to line h . What is the equation of line g ?

A $y = \frac{1}{4}x - 1$

B $y = \frac{1}{4}x - 5$

C $y = -\frac{1}{4}x + 5$

D $y = -4x - 5$