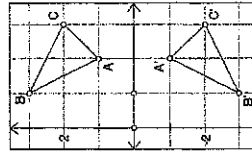


1. Translate the preimage A $(-2, -1)$ left 4 units and down 7 units.

2. Use the rule $(x, y) \rightarrow (x - 5, y + 8)$ to describe in words how the translation affects any point in the coordinate plane

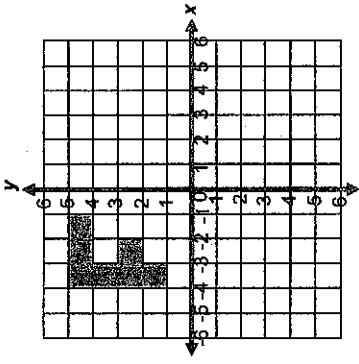
3. Given the vector $\langle -3, 7 \rangle$ what is the image of point $(-3, 5)$

4. The following picture is a reflection of the image and preimage over what line?

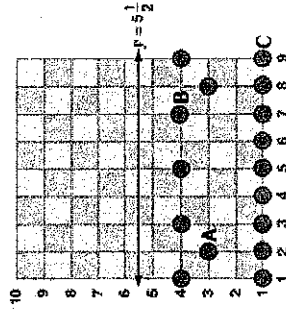


5. The "F" below is going to be translated 4 units down and 3 units to the right and then translated 2 units up and 1 unit to the right.

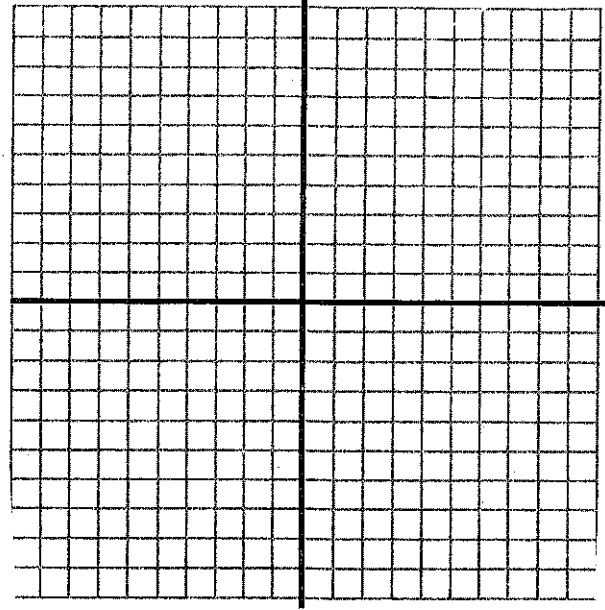
What single transformation would have the same effect on the "F" as performing both of the transformations listed above?



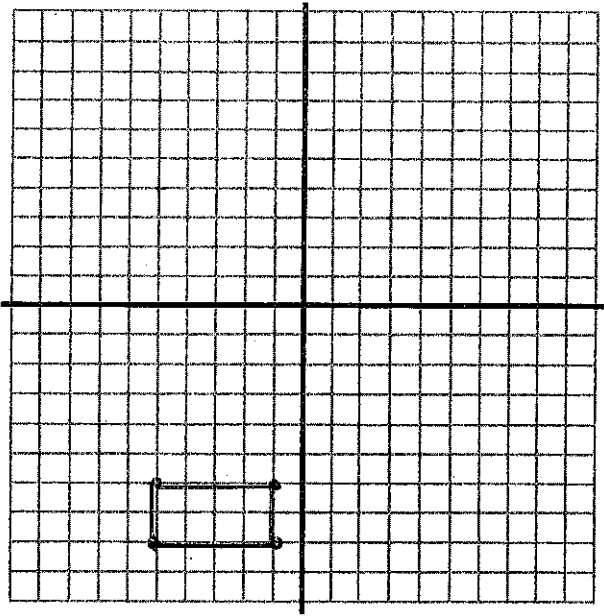
6. Paul and Janelle are getting ready to play a board game. Paul sets up his pieces as shown in this diagram.



Janelle's pieces will be set up the same way but reflected across the line $y = 5\frac{1}{2}$. What coordinate will represent Paul's chip C?

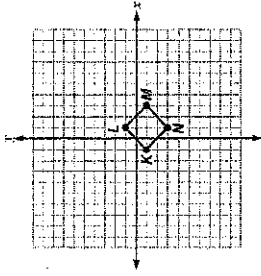


7. Rotate the figure 90°

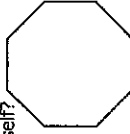


9. Rectangle KLMN is shown below.

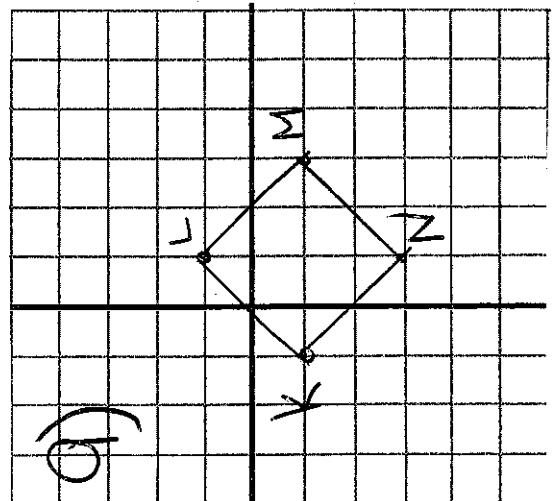
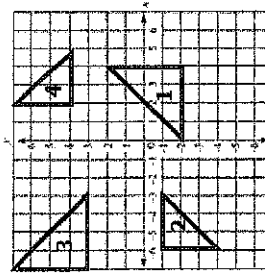
If KLMN undergoes a dilation of 2 centered on the origin to produce K'L'M'N', what line segment and its dilated image will have the same equation? And why only that line?



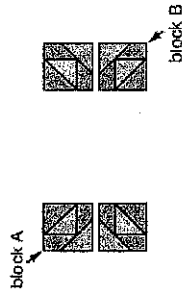
10. How many reflection lines exist to take the octagon onto itself?



8. Which pairs of triangles are congruent and why?



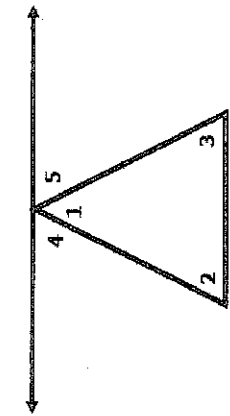
11. Terry made this quilt with the pattern shown.



Which transformations best describe the relationship between block A and block B?

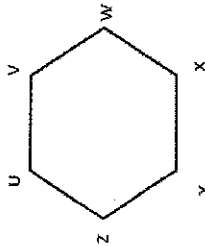
- A Two reflections
- B Two translations
- C A reflection and a translation
- D None of the above

12. Assume the bottom of the triangle and the line are parallel.

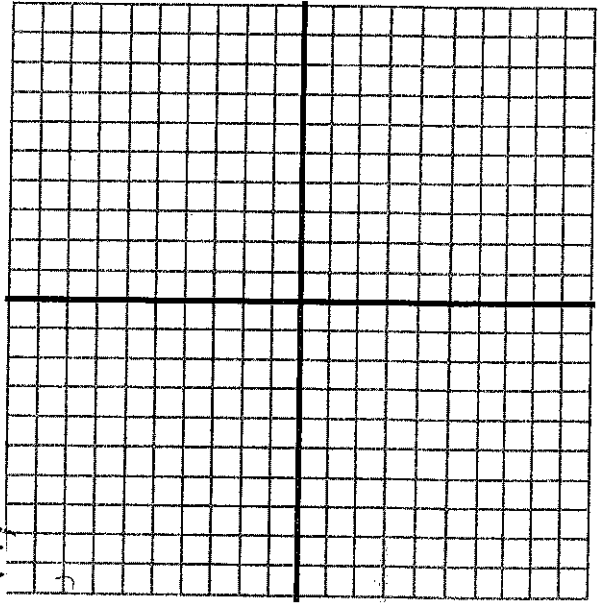


- What is the sum of angles 4, 2, and 3?
- What is the sum of angles 4, 1, and 5?
- By what angle theorem (SSIA, Corresponding angles, vertical angles, or AIA) do angles 2 and 4 relate? Angles 3 and 5?

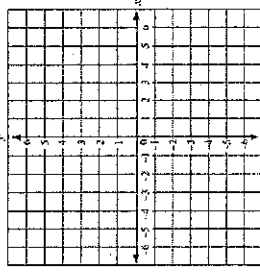
13. What is the degree of rotational symmetry for the regular hexagon? In a counterclockwise direction, what is the degree of rotation that maps point X on to point Z?



14

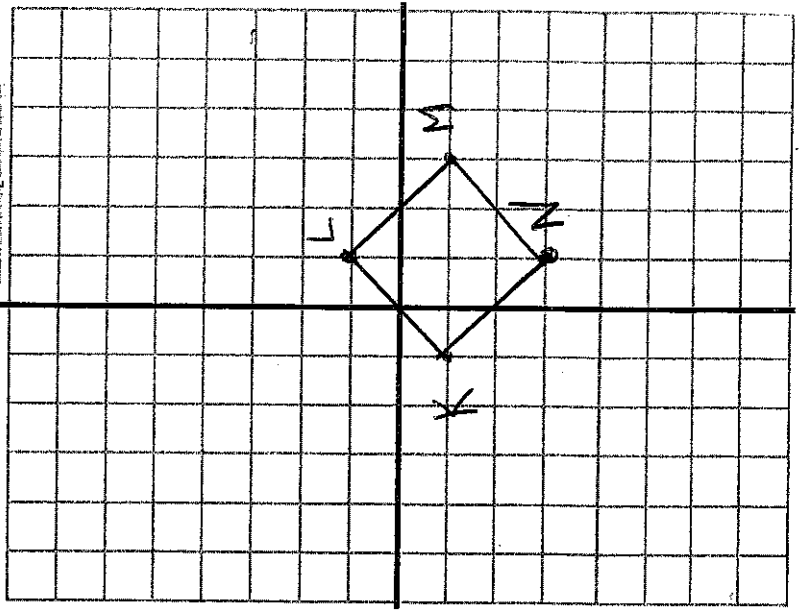


14. The vertices of triangle ABC are $A(3, -1)$, $B(7, 1)$, and $C(5, -4)$. Graph the image then perform a translation 2 left and 1 up, then reflect it over the $x = 1$ line. Draw the image of Triangle ABC once you find the new points.

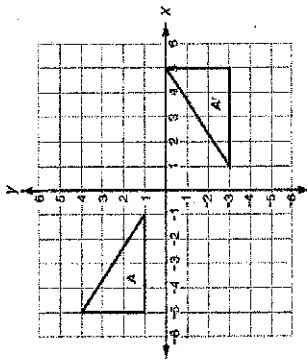


15. Rectangle $KLMN$ is shown at the right.

If $KLMN$ undergoes a dilation of 2 centered on the origin to produce $K'L'M'N'$, What are the new coordinate points?



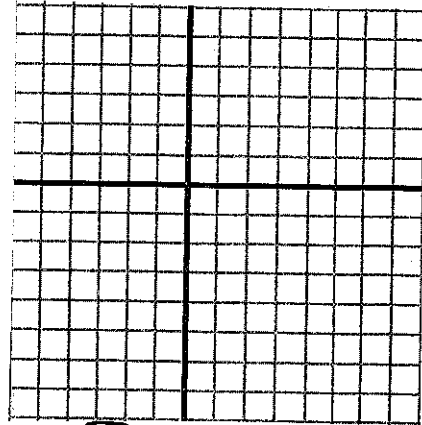
16. Look at figure A and its image, A'.



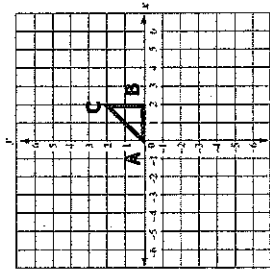
Describe the series of transformations that were performed on figure A?

17. The point $(2, 3)$ is reflected over the x -axis and then translated 4 units to the left and 2 units up. What are the new coordinates of the point?

18. The dimensions of an original rectangle are 10 cm by 16 cm. What are the new dimensions of the dilated rectangle using a scale factor of $\frac{1}{2}$?



19. Triangle ABC is at coordinates $A(0, 0)$, $B(2, 0)$ and $C(2, 2)$.



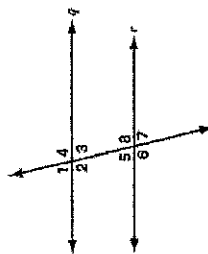
If triangle ABC undergoes a dilation of 3 centered on the origin to produce A'B'C', what segments from the preimage to image will be parallel?

20. Which **THREE** terms do **NOT** have a formal geometric definition?

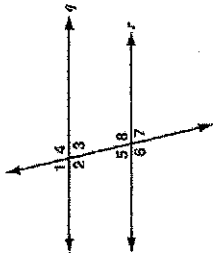
21. What is necessary to prove that a triangle's exterior angle equals the sum of the two remote interior angles?

22. Lines q and r are parallel. The $m\angle 8 = (2x - 28)^\circ$ and the $m\angle 4 = (x + 44)^\circ$.

- Solve for x .
- What is the $m\angle 2$? How do you know this?



23. Lines q and r are parallel.
The measure of $\angle 8 = 67^\circ$ and the
measure of $\angle 2 = 21 + x$.

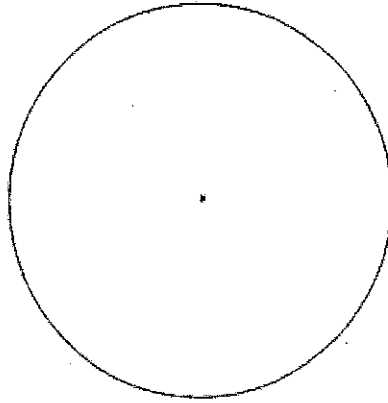


Why can you use the equation
 $67 = 21 + x$ to solve for x ?

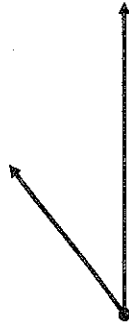
25. Construct a perpendicular bisector.



24. Construct a regular hexagon inscribed in a circle.



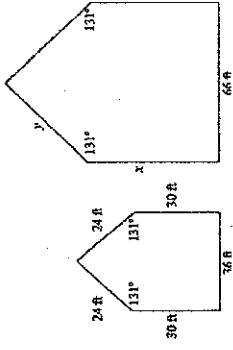
26. Construct the angle bisector.



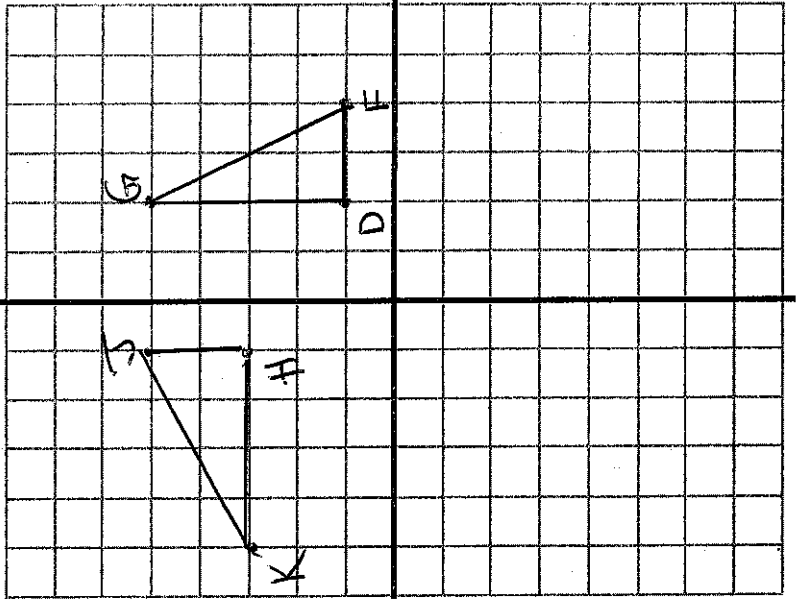
27. Find the equation of the line passing through the point $(-3, -4)$ and is parallel to the line having the equation: $1 + 3y - x = 0$ in slope intercept form.

28. Write an equation for line t can be written as $y = -8x - \frac{9}{10}$. Perpendicular to line t is line u which passes through the point $(-2, 1)$. What is the equation of line u in slope intercept form?

30. Two frame houses are built, a taller one next to a shorter one. If the frame houses are to be similar in their construction, what should the dimensions of the bigger house be?



31. Write the steps of how to construct a circle circumscribed about a triangle.



29. You can map $\triangle DFG$ to $\triangle HJK$ by a rotation followed by a translation. Provide the coordinate notation for each.

Rotation: _____

Followed by... _____

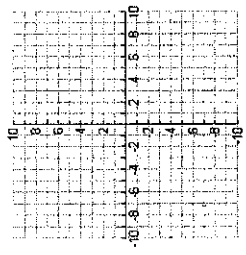
Translation: _____

32. Jeremy was given \overline{XY} , shown below.

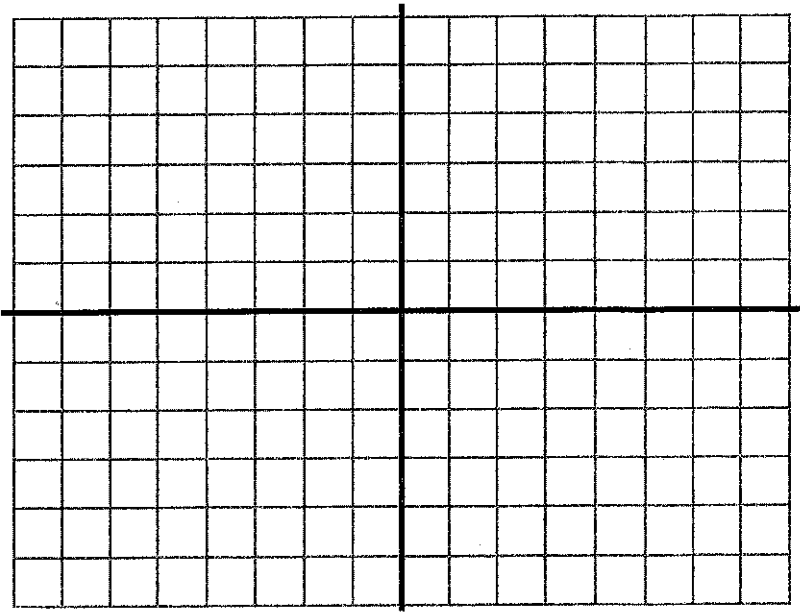


- Show how Jeremy could construct the perpendicular bisector of \overline{XY} . Explain each step.
- Describe how Jeremy could draw the perpendicular bisector of \overline{XY} .
- Describe how Jeremy could sketch the perpendicular bisector of \overline{XY} . Use words, numbers, and/or pictures to show your work. Write your answer(s) on the paper provided.

33. What is the midpoint of \overline{AB} if the coordinate of A is (3, -4) and the coordinate of B is (-7, 10)?

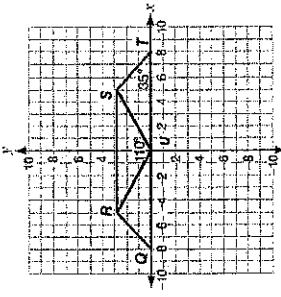


34. In a triangle with coordinates (1, 4), (2, 8), and (5, 4), what would be the perimeter rounded to the nearest hundredth?



37. $\triangle STU$ is reflected across the y -axis.

Which set of congruence statements explains why the triangles are congruent?

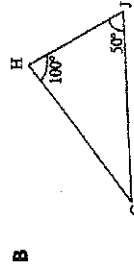
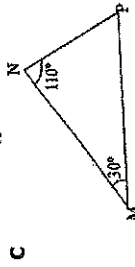
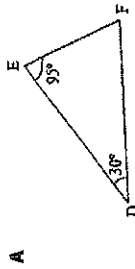
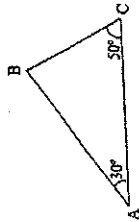


- A $\overline{QR} = \overline{S'U'}$ and $\overline{RU} = \overline{S'T'}$; $\angle Q = \angle TUS$; SAS
- B $\angle Q = \angle T$ and $\angle QUR = \angle TUS$; $\overline{QU} = \overline{TU}$; ASA
- C $\overline{QR} = \overline{US}$; $\overline{RU} = \overline{ST}$; $\overline{QU} = \overline{TU}$; SSS
- D $\angle Q = \angle T$; $\angle QRU = \angle TSU$; $\angle QUR = \angle TSU$; AAA

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

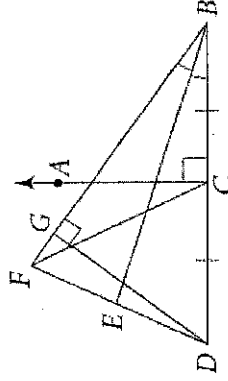
- A They are congruent if and only if the triangles are right triangles.
- B They are congruent if and only if the transformed figure was not rotated.
- C They are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
- D They are congruent if and only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

36. Which of the other triangles is similar to $\triangle ABC$ and why?



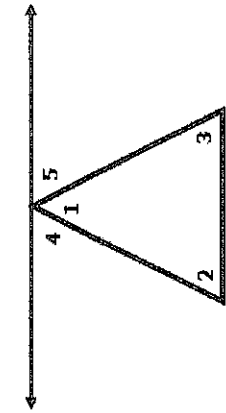
- D None of the above

38. Use the figure at the right to name the following in triangle BDF



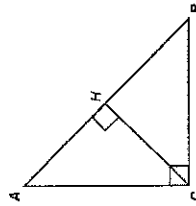
- a) an angle bisector
- b) a median
- c) a perpendicular bisector
- d) an altitude

39. Assume the bottom of the triangle and the line are parallel.



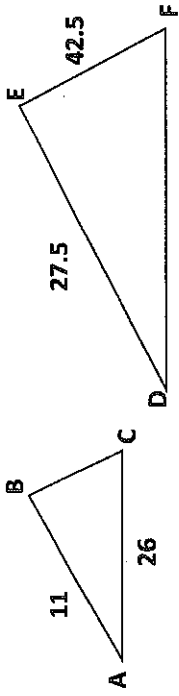
- What is the sum of angles 1, 2, and 3?
- What is the sum of angles 4, 1, and 5?
- By what angle theorem (SSIA, Corresponding angles, vertical angles, or AIA) do angles 2 and 4 relate? Angles 3 and 5?

40. A dilation with a scale factor of 2 is applied to $\triangle ABC$ to produce $\triangle A'B'C'$. If measure of $\angle A = 35^\circ$ and the measure of $\angle B = 102^\circ$ what are the measures of $\angle A'$, $\angle B'$, and $\angle C'$?

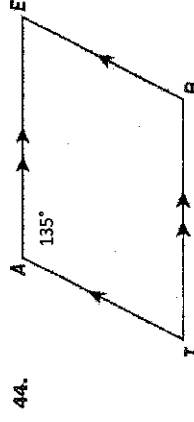
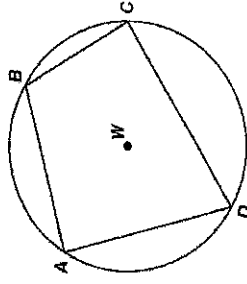


41. $\triangle ABC$ is a right triangle. CH is a perpendicular bisector that goes from vertex C to the hypotenuse AB of the triangle. How many similar triangles are there?

42. Find the missing side lengths of BC and DC if $\triangle ABC \sim \triangle DEF$



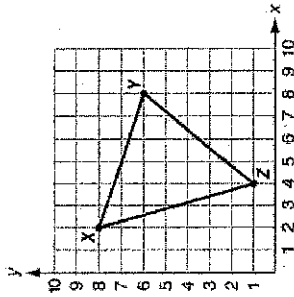
43. Quadrilateral $ABCD$ is inscribed circle O
What is true about $\angle A$ and $\angle C$?



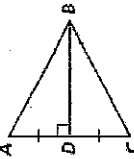
44. What is the measure of $\angle AEB$ in the diagram above?

45. Mrs. Douglas drew a quadrilateral on the chalkboard. She wanted her class to prove it was a rectangle. What conditions must be met for the quadrilateral to be a rectangle?

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



47. Given: $\angle ADB \cong \angle CDB$. D is the midpoint of \overline{AC}

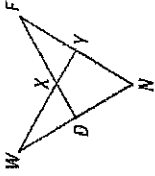


Prove: $\triangle ADB \cong \triangle CDB$

Statements	Reasons
1. $\angle ADB \cong \angle CDB$. D is the midpoint of \overline{AC}	1.
2. $\overline{AD} \cong \overline{CD}$	2.
3. $\overline{BD} \cong \overline{BD}$	3.
4. $\triangle ADB \cong \triangle CDB$	4.

48.

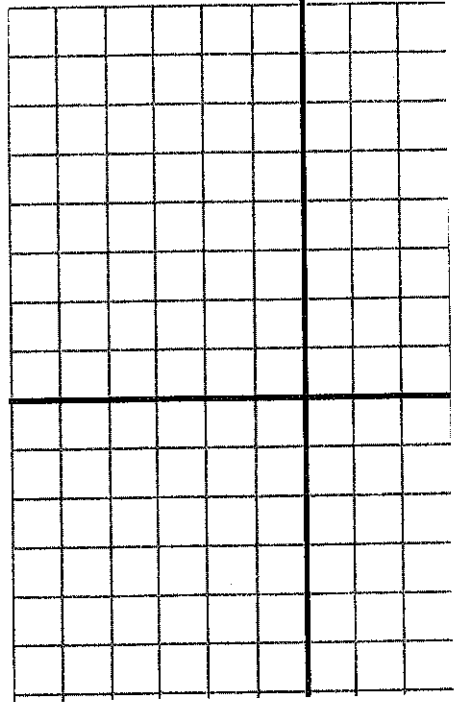
Given: $\overline{DN} \cong \overline{YN}$, $\overline{WN} \cong \overline{FN}$ Prove: $\triangle WYN \cong \triangle FDN$



Statements _____ Reasons _____

1. _____
2. _____
3. _____

49. What is the perimeter of the triangle with vertices (2, 6), (4, -2), and (8, 1). Round all side measures to the nearest tenth before giving a final answer.



50. a) What is the total perimeter of the rectangle and triangle together? Round to the nearest tenth if necessary.

b) What is the total area of the rectangle and triangle together? Round to the nearest tenth if necessary.

