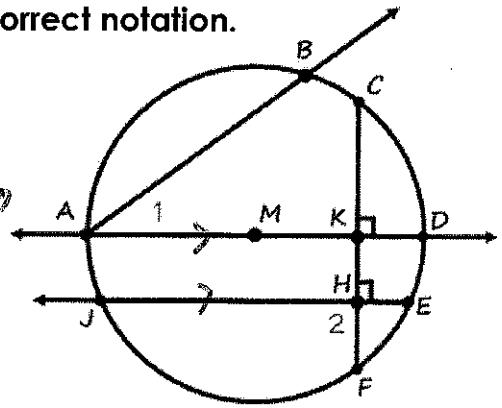
Geometry – Review for Quiz
Introduction to Geometry and Transformations

Name Key

Write the correct vocabulary word next to the definition.

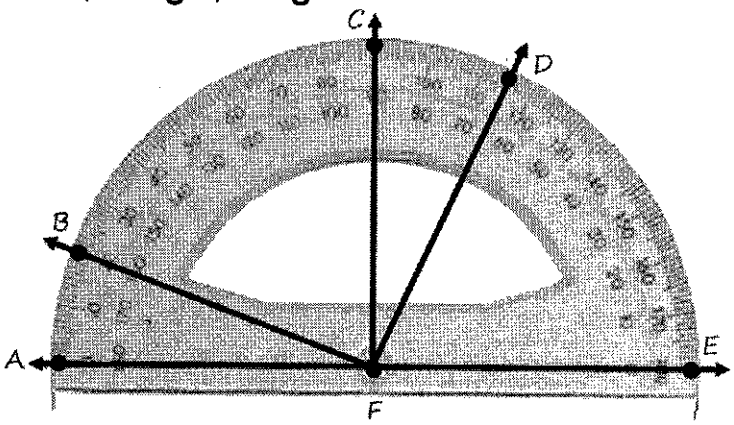
1. Angle - formed where two lines or rays share an endpoint
2. Segment - Part of a line bounded by two distinct endpoints
3. Point - an exact position or location in a given plane
4. Parallel - two lines that have unique points and never cross
5. Ray - a portion of a line that starts at a point and continues to infinity
6. Circle - the set of points on a plane at a certain distance, or radius from a single point, the center
7. Perpendicular lines - creates four right angles

Find each geometry term in the diagram. Label using correct notation.



8. Ray: $\overrightarrow{AB}$
9. Line: $\overleftrightarrow{AD}$
10. <1: $\angle BAM$
11. <2: $\angle FHJ$
12. Circle: $\odot M$
13. Line Segment: $\overline{ME}$
14. Parallel Lines: $\overleftrightarrow{AD} \parallel \overleftrightarrow{JE}$
15. Perpendicular Lines: $\overleftrightarrow{CK} \perp \overleftrightarrow{KD}$

Define the following angles as acute, obtuse, straight, or right.



16. m<AFB acute
17. m<EFC Right
18. m<EFD acute
19. m<AFD obtuse

20. Use the translation (x, y) → (x – 4, y + 8) for questions a – d.

a. What is the translation vector? $\langle -4, 8 \rangle$

b. What is the image of A (-7, -6)? A' (-11, 2)

c. What is the image of A'' (use part b)? A'' (-15, 10)

d. What is the pre-image of B' (10, 4)? B (14, -4)

21. The vertices of ΔABC are A(3, -1), B(0, 6), and C(-3, 5). Find the vertices of ΔA'B'C' given the transformation rules below. These describe the transformation that occurred.

a. (x, y) → (x – 8, y – 3) A' = (-5, -4), B' = (-8, 3), C' = (-11, 2)

Transformation: Translation

b. (x, y) → (x, -y) A' = (3, 1), B' = (0, -6), C' = (-3, -5)

Transformation: Reflection x-axis

c. (x, y) → (-y, -x) A' = (1, -3), B' = (-6, 0), C' = (-5, 3)

Transformation: Reflection y=-x

d. (x, y) → (y, x) A' = (-1, 3), B' = (6, 0), C' = (5, -3)

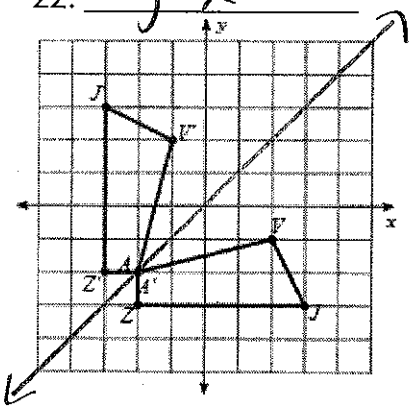
Transformation: Reflection y=x

e. (x, y) → (-x, y) A' = (-3, -1), B' = (0, 6), C' = (3, 5)

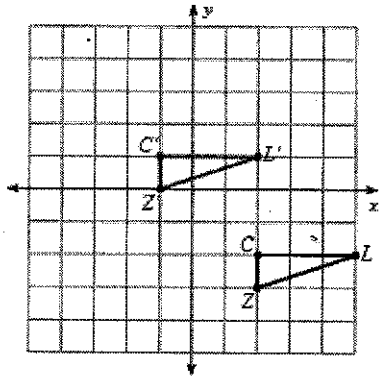
Transformation: Reflection y-axis

Write the <u>translation vector</u>, <u>line of reflection,</u> or <u>not here</u> for the following graphs.

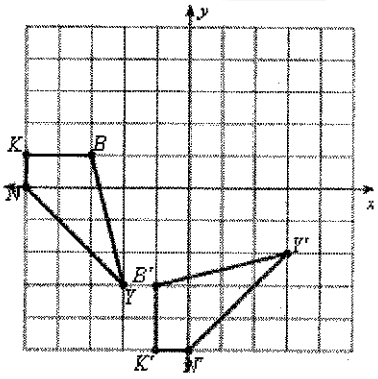
22. y=x



23. <-3, 3>

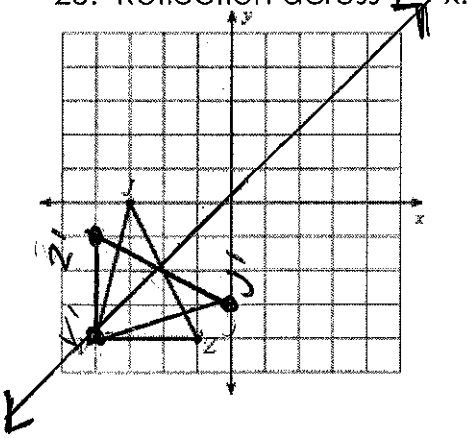


24. not here

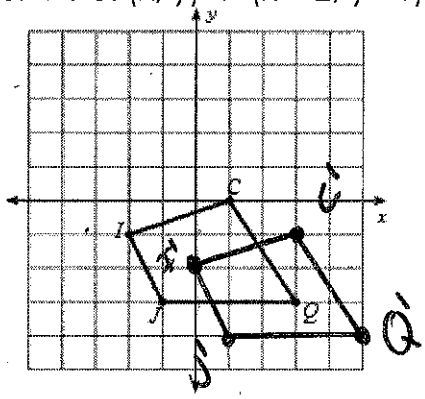


Follow the instructions for each graph.

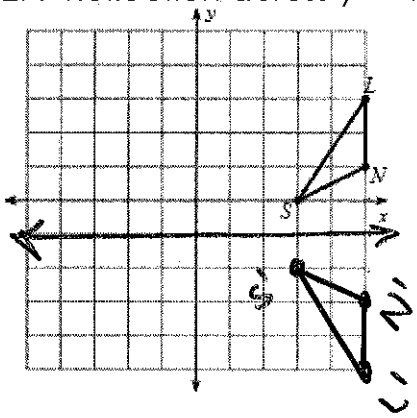
25. Reflection across y = x.



26. Rule: (x, y) → (x + 2, y - 1)

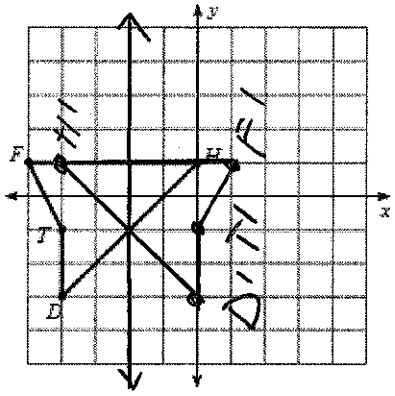


27. Reflection across y = -1.

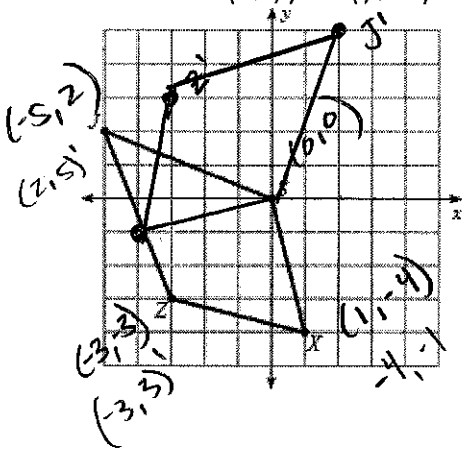


90° CW

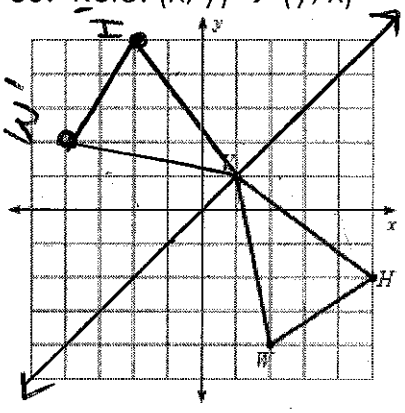
28. Reflection across x = -2.



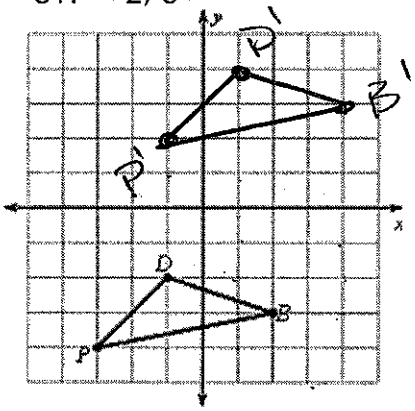
29. Rule: (x, y) → (y, -x)



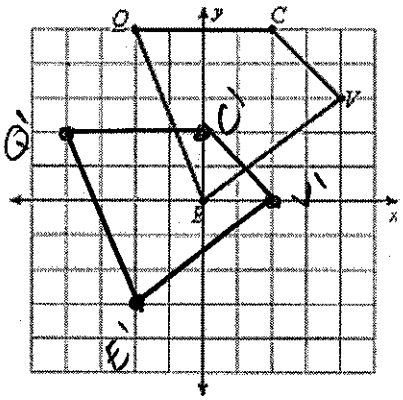
30. Rule: (x, y) → (y, x)



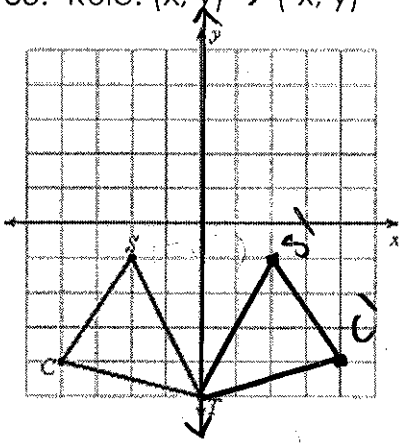
31. < 2, 6 >



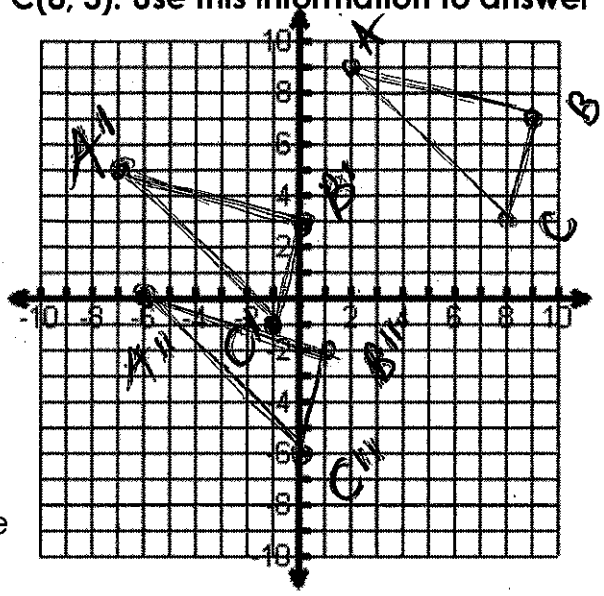
32. ⟨–2,–3⟩



33. Rule: (x, y) → (-x, y)



34. The vertices of ΔABC are A(2, 9), B(9, 7), and C(8, 3). Use this information to answer questions a-d.



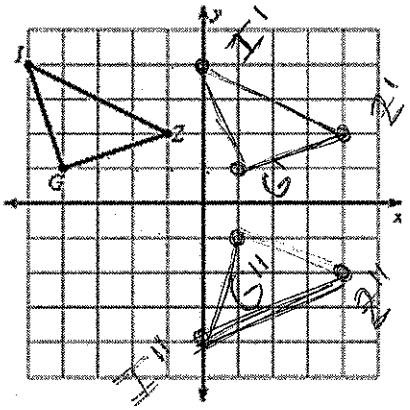
a. Plot ΔABC on the coordinate plane.

b. Translate ΔABC over the vector $\langle -9, -4 \rangle$.

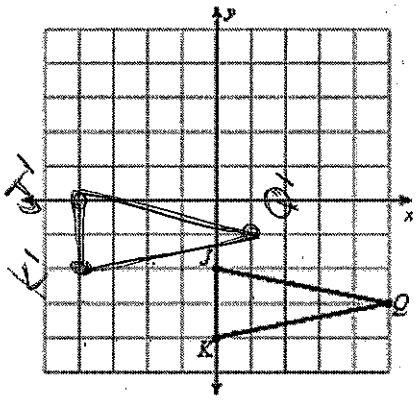
c. Translate $\Delta A'B'C'$ over the vector $\langle 1, -5 \rangle$.

d. What <u>one</u> transformation would be the same as this double translation? $\langle -8, -9 \rangle$

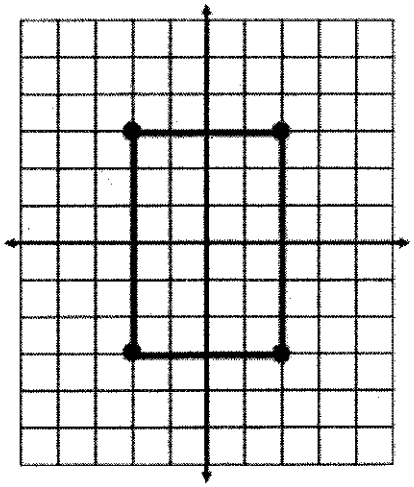
35. Translation: (x, y) → (x + 5, y)
Reflection: over the x-axis



36. Translation: < - 4, 2 >
Reflection: over the line y = -x



37. Which of the following transformations would move the quadrilateral onto itself (where it would look the same as it does right now)? **(There can be more than one answer here.)**



A. Rotation 90 degrees clockwise.

B. Reflection over the x-axis.

C. Rotation 180 degrees.

D. Translation left four units.

E. Reflection over the line y = x.

F. Reflection over the y-axis.