

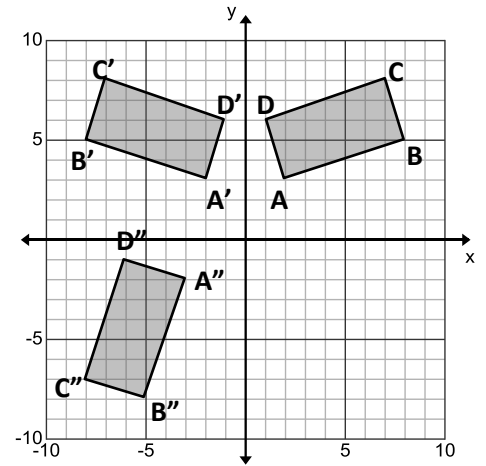
PROBLEM SET 6-9R and 6-12L

1. Rectangle ABCD has vertices A(2,3), B(8,5), C(7,8), and D(1,6).

a. Identify the transformation that mapped ABCD onto A'B'C'D':

b. Identify the transformation that mapped A'B'C'D' onto A''B''C''D'':

c. Explain why this composition results in an image that is congruent to its pre-image.



d. Identify one single rigid motion that would map ABCD onto A''B''C''D'': _____

e. Describe the translation vector $\langle \quad, \quad \rangle$ not $\overline{AA''}$ that would directly map A onto A'': _____
 Would D map to D'' under the same vector? _____

1. The vertices of isosceles trapezoid MATH are M(0, 0), A(-3, 4), T(9, 8), and H(9, 3).

a. If MATH were translated by the vector $\langle -2, 3 \rangle$, state the following:

i. The coordinates for M' _____

ii. $\overline{A'T'}$ \parallel _____ because _____

b. Which of the following transformations would *not* make M invariant?

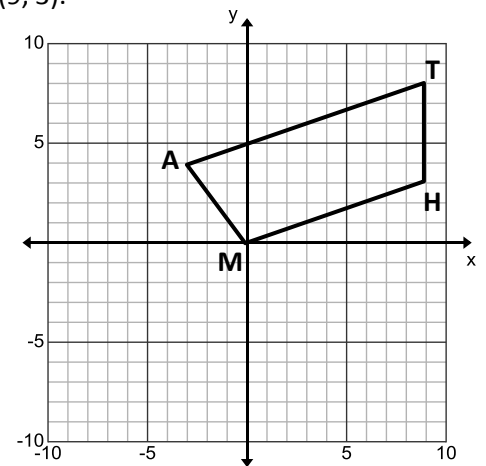
i. $T_{5,-6}$

ii. R_{90° around the origin

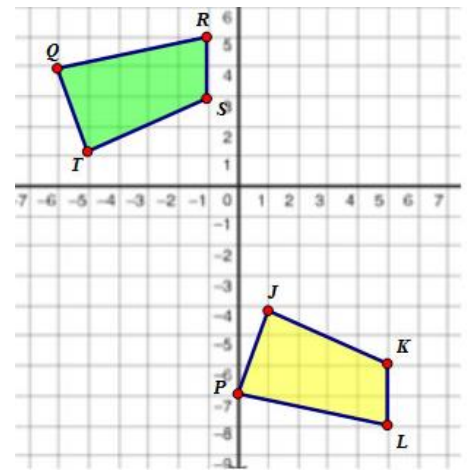
iii. R_{180° around the origin

iv. Point reflection through the origin

v. $r_{y\text{-axis}}$

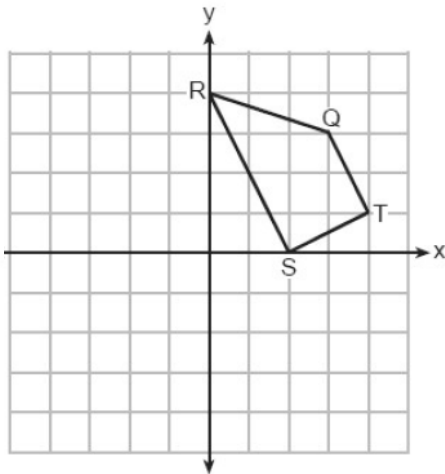


2. Explain through a series of rigid motions why quadrilateral QRST is congruent to quadrilateral PLKJ:



3. Trapezoid QRST is graphed on the set of axes below. Under which transformation will there be *no* invariant points?

1. $r_{y=0}$
2. $r_{x=0}$
3. $r_{(0,0)}$
4. $r_{y=x}$



6. Pentagon $PQRST$ has \overline{PQ} parallel to \overline{TS} . After a translation of $T_{2, -5}$, which line segment is parallel to $\overline{P'Q'}$?

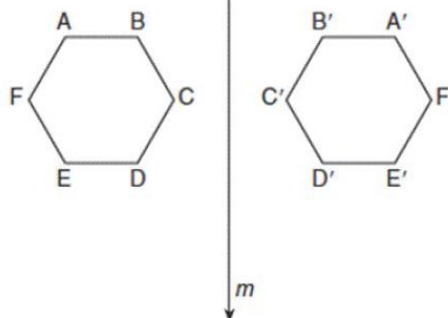
1. $\overline{R'Q'}$
2. $\overline{R'S'}$
3. $\overline{T'S'}$
4. $\overline{T'P'}$

7. The image of rhombus $VWXY$ preserves which properties under the transformation $T_{2, -3}$?

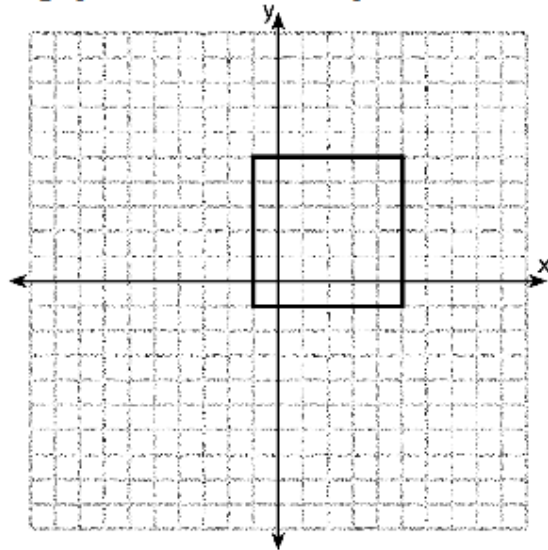
1. parallelism, only
2. orientation, only
3. both parallelism and orientation
4. neither parallelism nor orientation

4. As show in the diagram at right, when hexagon $ABCDEF$ is reflected over line m , the image is hexagon $A'B'C'D'E'F'$. Under this transformation, which property is *not* preserved?

1. area
2. distance
3. orientation
4. angle measure



8. In the diagram below, a square is graphed in the coordinate plane.



A reflection over which line does not carry the square onto itself? (Make a coincident square)

A) $x = 5$

B) $y = x$

C) $x + y = 4$

D) $y = 2$

Extra Credit: Given parallelogram ABCD, use a transformational approach to prove that the opposite sides are congruent.

