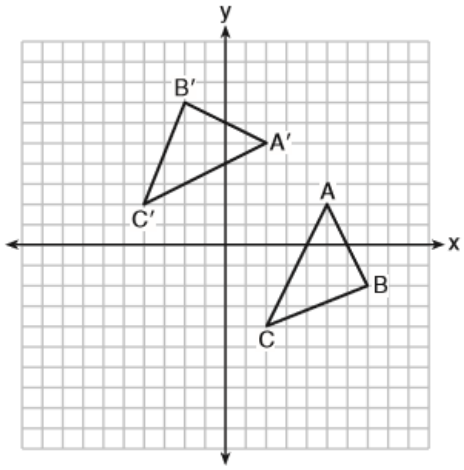
Real regents questions related to RIGID MOTION

The graph below shows two congruent triangles, ABC and $A'B'C'$.



Which rigid motion would map $\triangle ABC$ onto $\triangle A'B'C'$?

(1) a rotation of 90 degrees counterclockwise about the origin

(2) a translation of three units to the left and three units up

(3) a rotation of 180 degrees about the origin

(4) a reflection over the line $y = x$

The vertices of $\triangle PQR$ have coordinates $P(2,3)$, $Q(3,8)$, and $R(7,3)$. Under which transformation of $\triangle PQR$ are distance and angle measure preserved?

(1) $(x,y) \rightarrow (2x, 3y)$

(2) $(x,y) \rightarrow (x + 2, 3y)$

(3) $(x,y) \rightarrow (2x, y + 3)$

(4) $(x,y) \rightarrow (x + 2, y + 3)$

Which transformation would *not* carry a square onto itself?

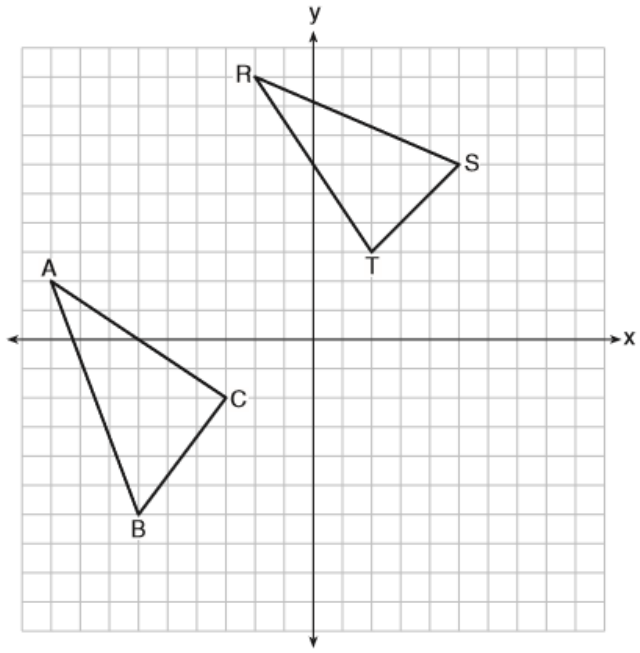
(1) a reflection over one of its diagonals

(2) a 90° rotation clockwise about its center

(3) a 180° rotation about one of its vertices

(4) a reflection over the perpendicular bisector of one side

In the graph below, $\triangle ABC$ has coordinates $A(-9,2)$, $B(-6,-6)$, and $C(-3,-2)$, and $\triangle RST$ has coordinates $R(-2,9)$, $S(5,6)$, and $T(2,3)$.



Is $\triangle ABC$ congruent to $\triangle RST$? Use the properties of rigid motions to explain your reasoning.

What is an equation of a line which passes through (6,9) and is perpendicular to the line whose equation is $4x - 6y = 15$?

(1) $y - 9 = -\frac{3}{2}(x - 6)$

(2) $y - 9 = \frac{2}{3}(x - 6)$

(3) $y + 9 = -\frac{3}{2}(x + 6)$

(4) $y + 9 = \frac{2}{3}(x + 6)$