Rigid or Not Rigid Transformations

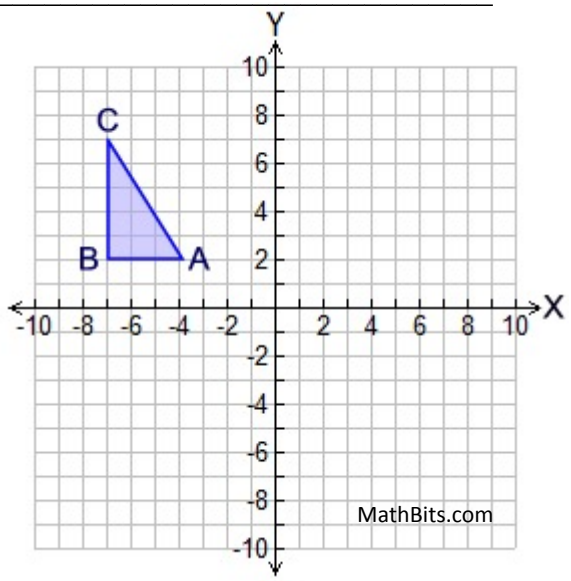
Name_____

1. ΔABC plotted at $A(-4,2)$, $B(-7,2)$ and $C(-7,7)$, is to be translated according to the rule $(x, y) \rightarrow (x+10, y-8)$.

a) Plot the image of ΔABC under this translation and label it $\Delta A'B'C'$. State the new coordinates:
A' = _____ B' = _____ C' = _____

b) Was length preserved during this translation? _____
Describe how you made your decision.

c) Are translations rigid transformations?_____
Explain.

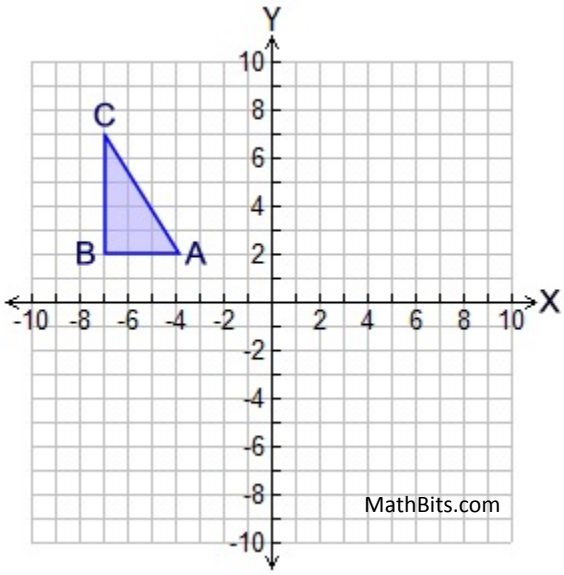


2. ΔABC plotted at $A(-4,2)$, $B(-7,2)$ and $C(-7,7)$, is to be reflected over the y-axis.

a) Plot the image of ΔABC under this reflection and label it $\Delta A'B'C'$. State the new coordinates:
A' = _____ B' = _____ C' = _____

b) Was length preserved during this reflection? _____
Describe how you made your decision.

c) Are reflections rigid transformations?_____
Explain.

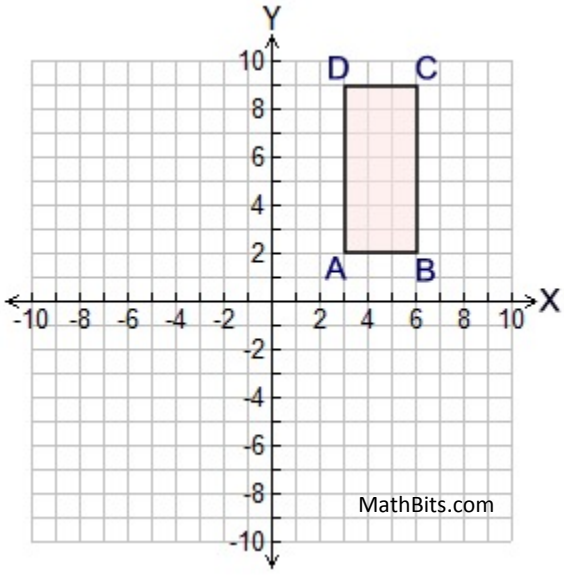


3. Rectangle $ABCD$ plotted at $A(3,2)$, $B(6,2)$, $C(6,9)$ and $D(3,9)$ is to be rotated 90º (center of rotation is the origin).

a) Plot the image of $ABCD$ under this rotation and label it $A'B'C'D'$. State the new coordinates:
A' = _____ B' = _____ C' = _____ D' = _____

b) Were the angle measures preserved during this rotation?
Describe how you made your decision.

c) Are rotations rigid transformations?_____
Explain.

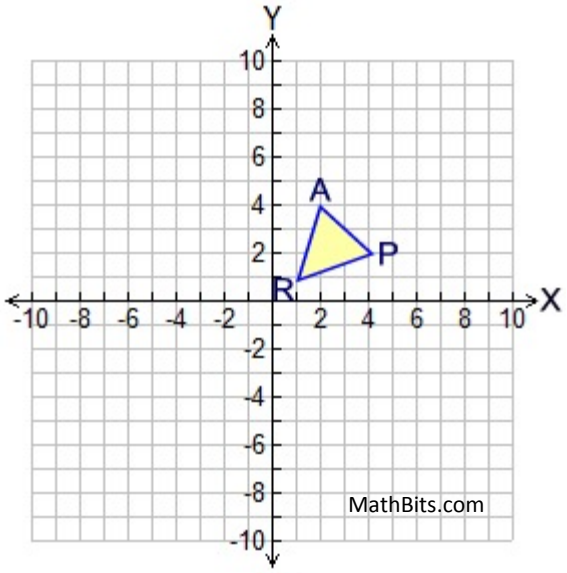


4. ΔRAP plotted at $R(1,1)$, $A(2,4)$ and $P(4,2)$, is to be dilated by a scale factor of 2 (center of dilation is origin).

a) Plot the image of ΔRAP under this dilation and label it $\Delta R'A'P'$. State the new coordinates:
R' = _____ A' = _____ P' = _____

b) Was length preserved during this translation? _____
If not, how do the lengths of the image compare to the lengths of the pre-image?

c) Are dilations rigid transformations?_____
Explain.



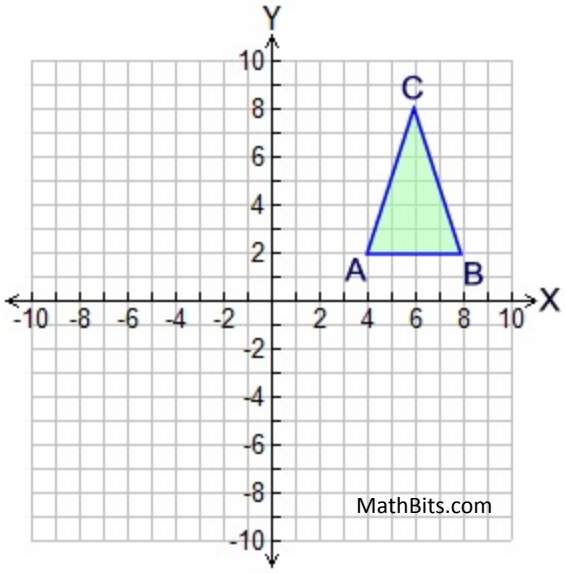
5. ΔABC plotted at $A(4,2)$, $B(8,2)$ and $C(6,8)$, is to be translated $(x, y) \rightarrow (x-10, y+1)$ and then reflected over the x-axis.

a) Plot the image of ΔABC under this sequence of transformations and label it $\Delta A'B'C'$. State coordinates:
A' = _____ B' = _____ C' = _____

b) Were the angle measures preserved during this sequence of transformations?_____ Why?

c) Was length preserved during this sequence of transformations?_____ Why?

d) Would this sequence of transformations be called a rigid transformation?_____ Explain.

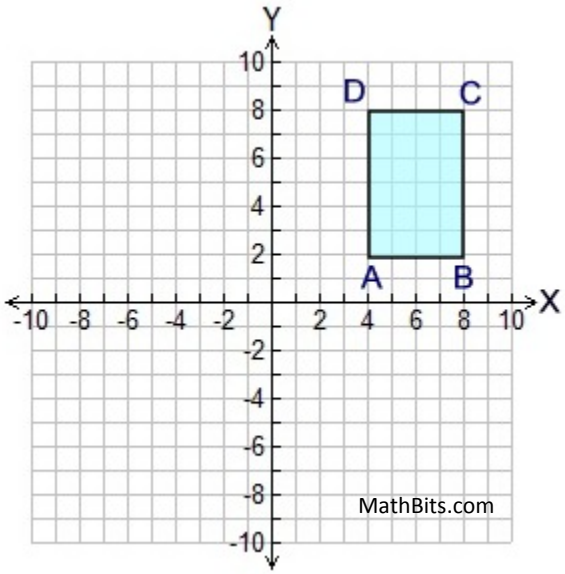


6. Rectangle $ABCD$ plotted at $A(4,2)$, $B(8,2)$, $C(8,8)$ and $D(4,8)$ is to be reflected in the line $x = 1$ and then dilated by a scale factor of ½. (center of dilation is the origin).

a) Plot the image of $ABCD$ under this sequence of transformations and label it $A'B'C'D'$. State coordinates:
A' = _____ B' = _____ C' = _____ D' = _____

b) Were the angle measures preserved during this sequence of transformations?_____ Why?

c) Was length preserved during this sequence of transformations?_____ Why?



d) Would this sequence of transformations be called a rigid transformation?_____
Explain.