Section-01-03-Coordinate Transforms

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. A video visual effects animator creates an animation by translating a logo using a coordinate description. Write a rule for the translation of logo 1 to logo 2.

   - (x, y) → (x + 6, y - 5)  
   - (x, y) → (x + 5, y - 6)  
   - (x, y) → (x - 6, y + 5)  
   - (x, y) → (x - 5, y + 6)

2. Point N (2, 9) is on \(\overline{RS}\). A translation moves point N to its image N'(6, 3).

   What is the distance, in units, between any point on \(\overline{RS}\) and its image?

   - \(\sqrt{10}\)  
   - \(\sqrt{40}\)  
   - \(\sqrt{52}\)  
   - \(\sqrt{130}\)
Consider Quadrilateral ABCD defined by the coordinates:

A: (2, 3)
B: (3, 1)
C: (-4, 2)
D: (2, -3)

If Quadrilateral ABCD were reflected over the x-axis, what would the coordinates of the newly created Quadrilateral Image A’B’C’D’?

a. A: (-2, 3)  
   B: (-3, 1)  
   C: (4, 2)  
   D: (-2, -3)

b. A: (-2, -3)  
   B: (-3, -1)  
   C: (4, -2)  
   D: (-2, 3)

c. A: (2, -3)  
   B: (3, -1)  
   C: (-4, -2)  
   D: (2, 3)

d. A: (3, 2)  
   B: (1, 3)  
   C: (2, -4)  
   D: (-3, 2)

Point A’ is the reflection of point A over the line y = 2. What are the coordinates of A’?

a. A’(2, 4)  
   b. A’(-2, 0)  
   c. A’(0, -2)  
   d. A’(4, 2)
5. If the point A is located at (2, 3) and A’ is the image of A after being \textit{rotated about the origin by 90° (counter clockwise)}. What are the coordinates of A’?

\begin{itemize}
  \item[a.] A'(3, -2)
  \item[b.] A'(-3, 2)
  \item[c.] A'(-3, -2)
  \item[d.] A'(2, -3)
\end{itemize}

6. Which process stated below would result in a dilation of coordinate points to the origin by a scale factor of 0.5?

\begin{itemize}
  \item[a.] Multiply only the x-coordinate by 0.5 of each point to be dilated.
  \item[b.] Multiply only the y-coordinate by 2 of each point to be dilated.
  \item[c.] Multiply both the x-coordinate and the y-coordinate by 0.5 of each point to be dilated.
  \item[d.] Multiply both the x-coordinate and the y-coordinate by 2 of each point to be dilated.
\end{itemize}

7. Which process stated below would result in a translation to the up 3 of coordinate points?

\begin{itemize}
  \item[a.] Add 3 to just the x-coordinate of each point to be translated.
  \item[b.] Subtract 3 from just the x-coordinate of each point to be translated.
  \item[c.] Add 3 to just the y-coordinate of each point to be translated.
  \item[d.] Subtract 3 from just the y-coordinate of each point to be translated.
\end{itemize}
8. In the graph below $\overrightarrow{MN}$ below is represented by the equation $y = -2x + 4$. If $\overrightarrow{MN}$ is reflected in the y-axis, what would be the new value of $x$ when $y = 0$.

   a. -4  
   b. -2  
   c. 4  
   d. 2