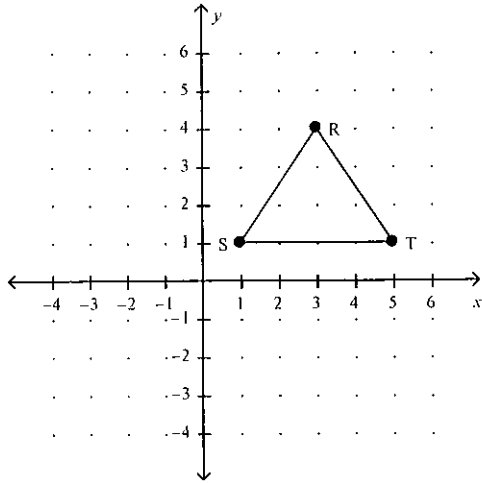


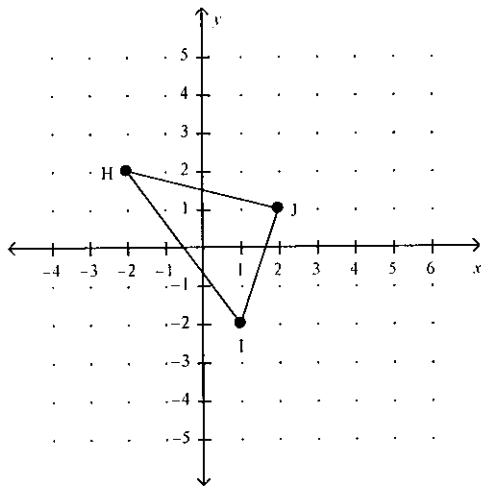
Draw the image and label with letters. Then, identify the letter of the choice that best completes the statement or answers the question.

1. Translate triangle RST left 3 units and down 2 units. List the coordinates of the vertices of the new figure.



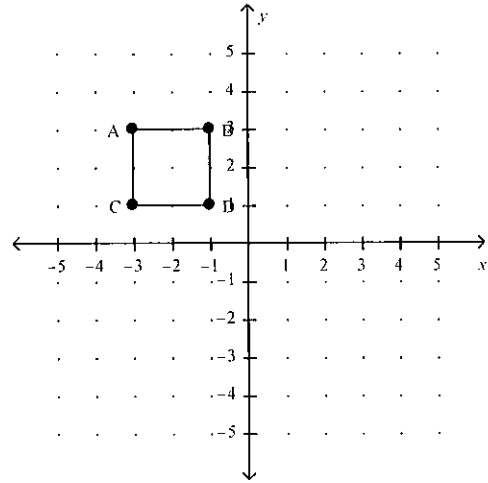
- a.  $R'(6, 6), S'(4, 3), T'(8, 3)$     c.  $R'(3, 2), S'(1, -1), T'(5, -1)$   
 b.  $R'(0, 4), S'(-2, 1), T'(2, 1)$     d.  $R'(0, 2), S'(-2, -1), T'(2, -1)$

2. Translate HJ right 1 unit and up 2 units. List the coordinates of the vertices of the new figure.



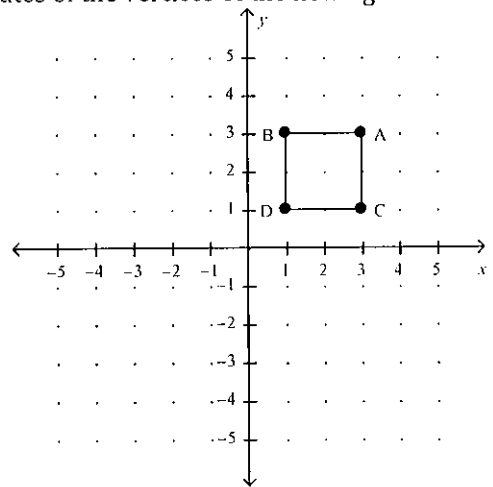
- a.  $H'(-1, 2), I'(2, -2), J'(3, 1)$     c.  $H'(-2, 4), I'(1, 0), J'(2, 3)$   
 b.  $H'(-1, 4), I'(2, 0), J'(3, 3)$     d.  $H'(-3, 0), I'(0, -4), J'(1, -1)$

3. The plan for a room is drawn on a grid. It is then decided that the square table should be moved to the right 2 units and down 2 units. List the new coordinates of the vertices.



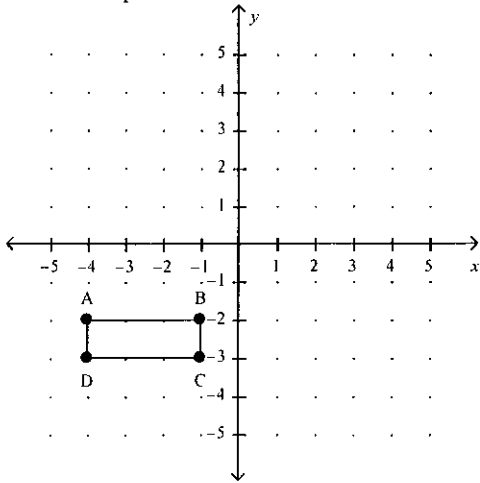
- a.  $A'(-1, 1), B'(1, 1), D'(1, -1), C'(-1, -1)$   
 b.  $A'(-5, 5), B'(-3, 5), D'(-3, 3), C'(-5, 3)$   
 c.  $A'(-3, 1), B'(-1, 1), D'(-1, -1), C'(-3, -1)$   
 d.  $A'(-1, 3), B'(1, 3), D'(1, 1), C'(-1, 1)$

4. Reflect BACD across the x-axis. List the coordinates of the vertices of the new figure.



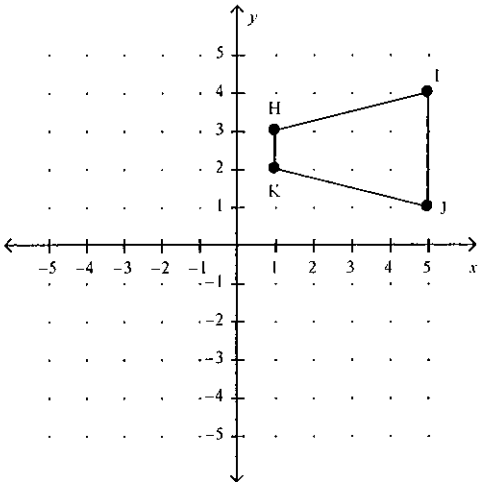
- a.  $B'(1, 3), A'(3, 3), C'(3, 1), D'(1, 1)$   
 b.  $B'(1, -3), A'(3, -3), C'(3, -1), D'(1, -1)$   
 c.  $B'(-1, -3), A'(-3, -3), C'(-3, -1), D'(-1, -1)$   
 d.  $B'(-1, 3), A'(-3, 3), C'(-3, 1), D'(-1, 1)$

5. A bedroom plan is being designed on the grid below. The designer decides to reflect the placement of the bed, which is represented by rectangle ABCD, across the x-axis. What will be the coordinates of the vertices of the bed in the new plan?



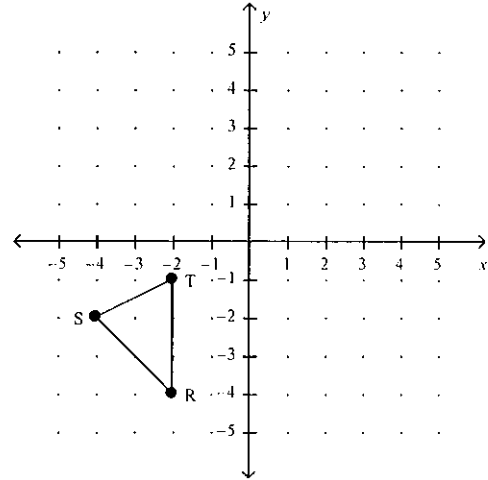
- a.  $A'(-4, 2)$ ,  $B'(-1, 2)$ ,  $C'(-1, 3)$ ,  $D'(-4, 3)$
- b.  $A'(-4, -2)$ ,  $B'(-1, -2)$ ,  $C'(-1, -3)$ ,  $D'(-4, -3)$
- c.  $A'(4, 2)$ ,  $B'(1, 2)$ ,  $C'(1, 3)$ ,  $D'(4, 3)$
- d.  $A'(4, -2)$ ,  $B'(1, -2)$ ,  $C'(1, -3)$ ,  $D'(4, -3)$

6. Members of a dance team begin in a trapezoid formation that is represented by trapezoid HIJK on the grid below. They move so that their new formation is a reflection across the y-axis. What are the new coordinates of the vertices after this reflection?



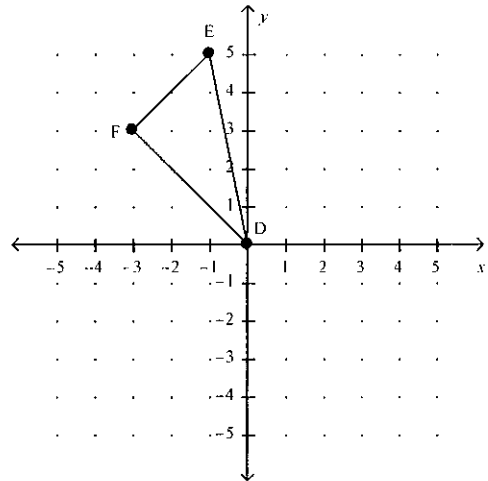
- a.  $H'(-1, 3)$ ,  $I'(-5, 4)$ ,  $J'(-5, 1)$ ,  $K'(-1, 2)$
- b.  $H'(1, -3)$ ,  $I'(5, -4)$ ,  $J'(5, -1)$ ,  $K'(1, -2)$
- c.  $H'(1, 3)$ ,  $I'(5, 4)$ ,  $J'(5, 1)$ ,  $K'(1, 2)$
- d.  $H'(-1, -3)$ ,  $I'(-5, -4)$ ,  $J'(-5, -1)$ ,  $K'(-1, -2)$

7. A flag is represented by triangle RST on the grid below. The flag is moved so that it is reflected across the x-axis. What are the coordinates of the vertices after the reflection?



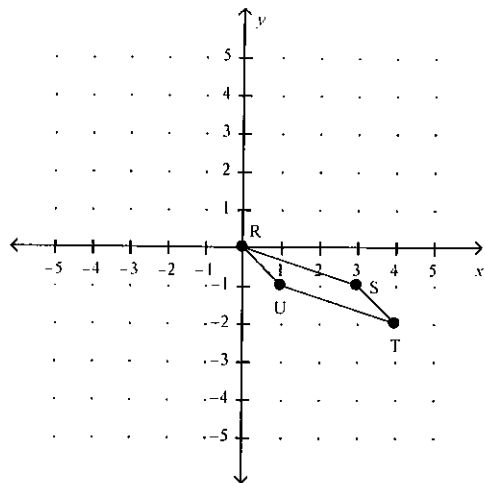
- a.  $R'(2, 4)$ ,  $S'(4, 2)$ ,  $T'(2, 1)$
- b.  $R'(-2, 4)$ ,  $S'(-4, 2)$ ,  $T'(-2, 1)$
- c.  $R'(-2, -4)$ ,  $S'(-4, -2)$ ,  $T'(-2, -1)$
- d.  $R'(2, -4)$ ,  $S'(4, -2)$ ,  $T'(2, -1)$

8. Rotate DEF 180° clockwise about the origin. List the coordinates of the vertices of the new figure.



- a.  $D'(0, 0)$ ,  $E'(-1, -5)$ ,  $F'(-3, -3)$
- b.  $D'(0, 0)$ ,  $E'(5, 1)$ ,  $F'(3, 3)$
- c.  $D'(0, 0)$ ,  $E'(1, -5)$ ,  $F'(3, -3)$
- d.  $D'(3, -3)$ ,  $E'(2, 2)$ ,  $F'(0, 0)$

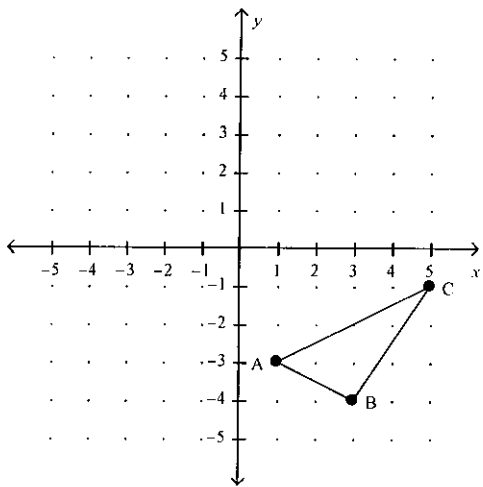
9. Rotate RSTU  $360^\circ$  clockwise about the origin. List the coordinates of the vertices of the new figure.



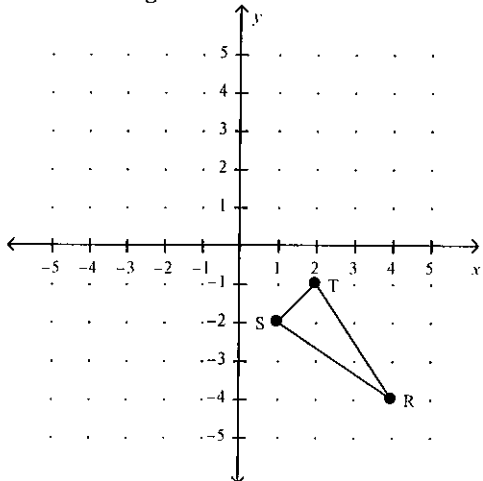
- a.  $R'(0, 0)$ ,  $S'(-3, 1)$ ,  $T'(-4, 2)$ ,  $U'(-1, 1)$
- b.  $R'(0, 0)$ ,  $S'(3, -1)$ ,  $T'(4, -2)$ ,  $U'(1, -1)$
- c.  $R'(-4, 2)$ ,  $S'(-1, 1)$ ,  $T'(0, 0)$ ,  $U'(-3, 1)$
- d.  $R'(0, 0)$ ,  $S'(3, 1)$ ,  $T'(4, 2)$ ,  $U'(1, 1)$

**Short Answer:** Graph the image and label with letters.

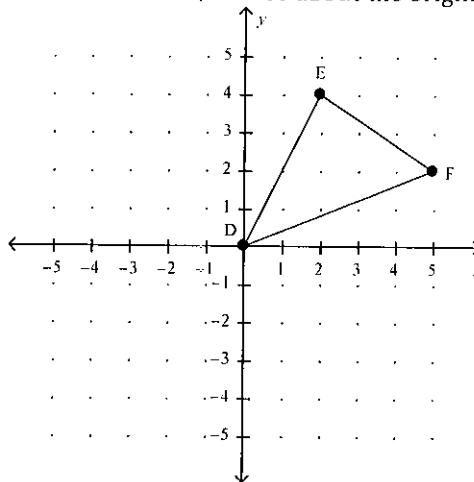
10. Translate ABC up 4 units and left 2 units. Show all your work.



11. Reflect triangle RST across the x-axis.



12. What will the coordinates of DEF be if you rotate the figure  $180^\circ$  counterclockwise about the origin?

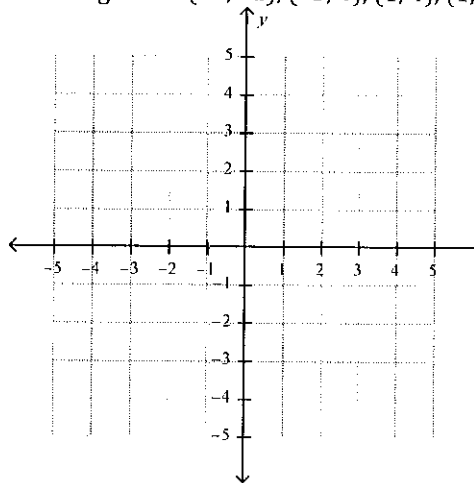



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13. Graph the figure with the given vertices. Then find the area of the figure.  $(-3, -1)$ ,  $(-3, 4)$ ,  $(1, 4)$ ,  $(1, -1)$




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14. Explain how to find the new coordinates of the point  $(-2, 1)$  after a translation 4 units to the left and 3 units up. Then give the new coordinates.

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