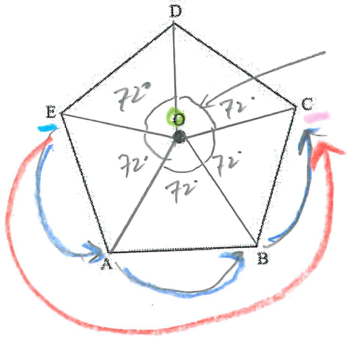
MOHYUDDIN  Solutions

CO-A3a

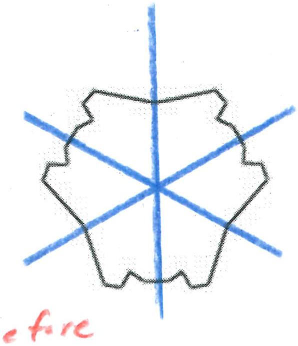
Practice Assessment

1. What is the minimum number of degrees of counterclockwise rotation about point O required to carry point E onto point C on the regular pentagon below?



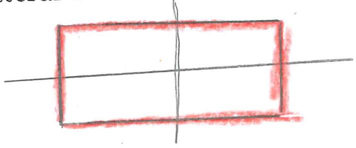

360° in total
each $\Delta$ is $\frac{1}{5}$ of 360°
so,
$\frac{360}{5} = 72°$ ← each "turn"
x 3 turns needed.
216°

2. Mark all lines of reflection which would carry the figure onto itself.

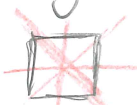


means: looks the same as before the transformation

3. Draw a quadrilateral below with exactly 2 lines of reflectional symmetry.



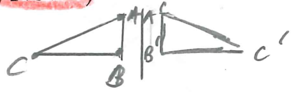
Note: a square has 4 lines of symmetry.



CO-A4

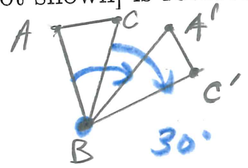
4. (Always/Sometimes/Never) A translation along a vector will carry a figure onto itself.
slide  direction + magnitude  (see #2)
because a slide will always move the object to a new locatio[n]

5. (Always/Sometimes/Never) After a reflection, the points of a figure all move by the same amount.




Note that A to A' is shorter distance than C to C'. ($\overline{AA'} \neq \overline{CC'}$)

6. $\Delta ABC$ [not shown] is rotated 30° clockwise about point B. Which points of the figure will be moved?

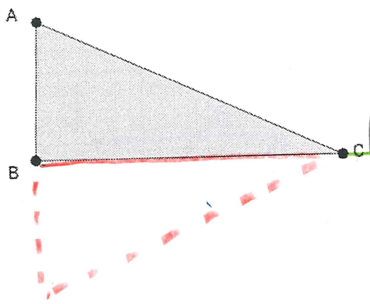



(Note that B stays put) "pivot"  A and C

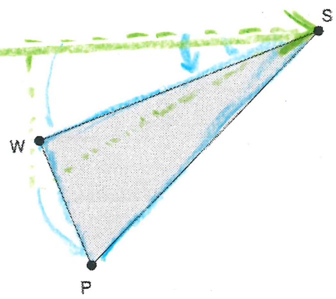
CO-B6a

7. Describe in detail a sequence of rigid motions that would carry $\Delta ABC$ onto $\Delta PWS$.
[*Hint that won't be on the real test*: be sure to give what line you reflect over, what vector you translate along, and what point you rotate around]

(Possible answer)




1. Reflect $\Delta ABC$ across $\overline{BC}$.
2. Translate along vector $\overrightarrow{CS}$.
3. Rotate Counterclockwise around point S until B maps to W.



(**CO-B6a** continued) TRANSLATION → only add / subtract

Consider $\Delta ABC$ on the coordinate plane. It first undergoes the transformation $(x, y) \rightarrow (x-3, y-2)$ to create $\Delta A'B'C'$. Then, $\Delta A'B'C'$ undergoes the transformation $(x, y) \rightarrow (-x, -y)$ to create $\Delta A''B''C''$.

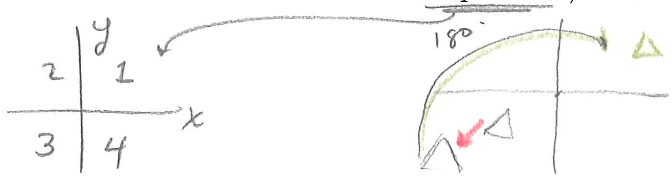
8. Describe in detail what each transformation does.

( , )
↑ ↑
Left − down −
right + up +

$(x, y) \rightarrow (x-3, y-2)$ translation, left 3, down 2.

$(x, y) \rightarrow (-x, -y)$ rotation 180° about origin
"opposite" (see notes 10/23)

9. If $\Delta ABC$ exists wholly within the third quadrant, in which quadrant will $\Delta A''B''C''$ be plotted?

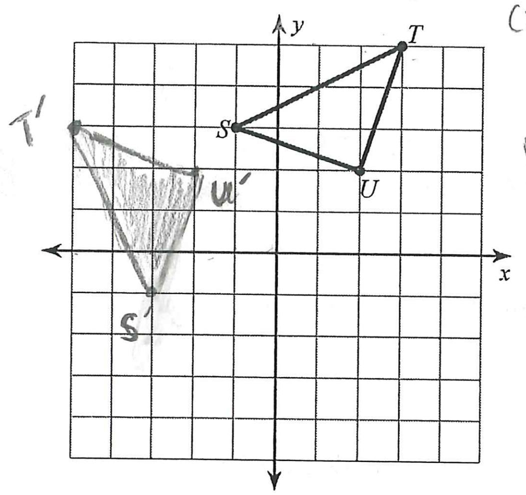



first

**CO-A2a** [review skill, may or may not appear on actual test]

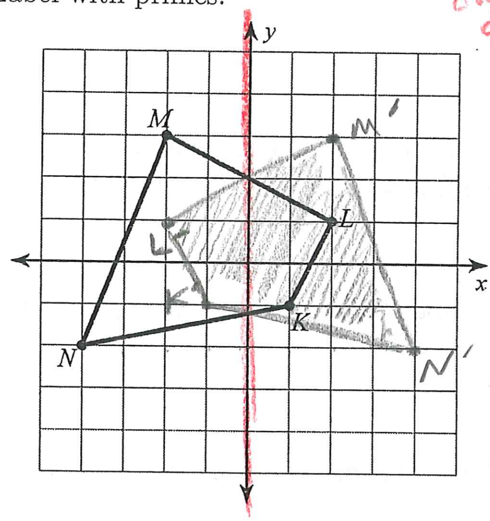
10. Rotate $\Delta STU$ 90° counterclockwise about the origin. Label with primes.

$(x, y) \rightarrow (-y, x)$
or
use
paper-turning
method.




11. Reflect the figure across the y-axis. Label with primes.

count distance, or
$(x, y) \rightarrow (-x, y)$

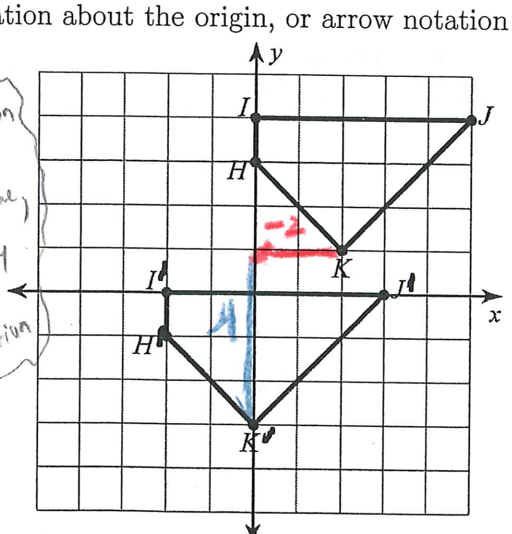



**CO-A5a** [review skill, may or may not appear on actual test]

Identify each as a rotation, translation, or reflection. Then give either the line of reflection, angle/direction of rotation about the origin, or arrow notation rule for translation.

12.

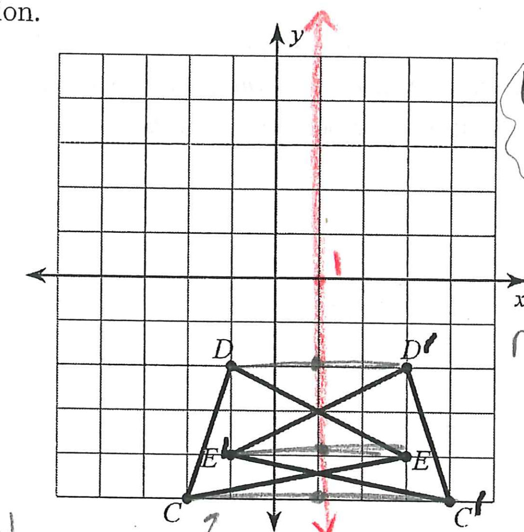
orientation is the same, probably a translation




translation
$(x, y) \rightarrow (x-2, y-4)$

13.

looks symmetrical... reflection?




reflection across
$x = 1$

(Find midpoints of connecting segments)