

1. Use these three segments:

$$\overline{AB} \quad A(-4,3) \quad B(8,-5) \quad m = \frac{-5-3}{8-(-4)} = \frac{-8}{12} = -\frac{2}{3}$$

$$\overline{CD} \quad C(0,-4) \quad D(6,5) \quad m = \frac{5-(-4)}{6-0} = \frac{9}{6} = \frac{3}{2}$$

$$\overline{EF} \quad E(1,5) \quad F(11,1)$$

Which two segments are perpendicular?

$$\overline{AB} \perp \overline{CD}$$



Slopes must be opposite reciprocals.

2. Given $\triangle ABC$ has the following coordinates:

$$A(0,-2) \quad B(-3,-2) \quad C(-2,-4)$$

Give the coordinates of the image of $\triangle ABC$ after each transformation.

a) Reflect $\triangle ABC$ over the x-axis.

$$A'(0,2) \quad B'(-3,2) \quad C'(-2,4)$$

b) Reflect $\triangle ABC$ over the line $x = 1$

$$A'(2,-2) \quad B'(5,-2) \quad C'(4,-4)$$

c) Rotate $\triangle ABC$ 90° CCW

$$A'(-2,0) \quad B'(2,3) \quad C'(-4,2)$$

$$(x,y) \rightarrow (-y,x)$$

d) Rotate $\triangle ABC$ 180°

$$A'(0,2) \quad B'(3,2) \quad C'(2,4)$$

$$(x,y) \rightarrow (-x,-y)$$

e) Translate $\triangle ABC$ 5 units right and 3 units up.

$$A'(5,1) \quad B'(2,1) \quad C'(3,-1)$$

$$(x,y) \rightarrow (x+5, y+3)$$