

Paper Crease

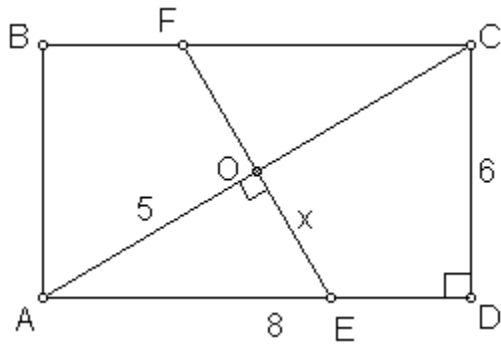
From 1000problems.com

Fold a 6-inch by 8-inch piece of paper so that the opposite corners meet.

When you unfold the paper again, how long is the crease?

Hint:

Similar triangles...



Solution:

Assume C is folded to coincide with A.

AC = 10cm

$\triangle AOE$ is similar to $\triangle ADC$ (AAA), so:

$$\frac{x}{5} = \frac{6}{8}, \text{ whence } x = \frac{15}{4}, \text{ and the required length } EF = \frac{15}{2} = \mathbf{7.5 \text{ cm}}$$