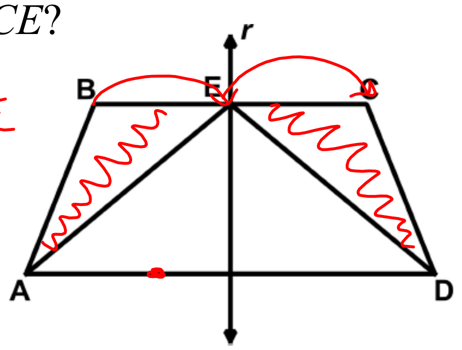
DO NOW

Given that line r is the perpendicular bisector of BC and AD, which of the following would be used to justify that ΔABE is congruent to ΔDCE?

$\Delta ABE \cong \Delta DCE$

$A \to D$
$B \to C$
$E \to E$



(1) a reflection of ΔABE across the line $\overleftrightarrow{AD}$

(2) a 180° rotation of ΔABE about point E

(3) a translation of ΔABE in the direction of $\overrightarrow{BC}$ by a distance of BE.

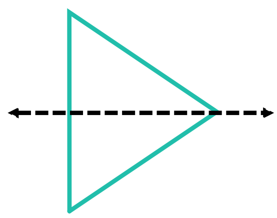
(4) a reflection of ΔABE across line r.

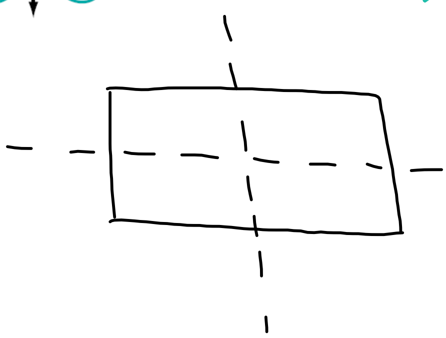
Line Symmetry

Occurs when two halves of a figure mirror each other across a line

Vertical

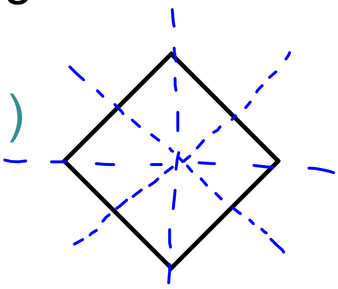
Horizontal



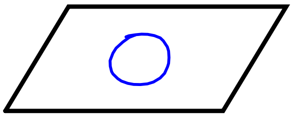


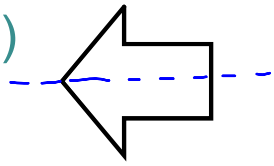
How many lines of symmetry do the following figures have?

Parallelogram

1) 

4

2) 

3) 

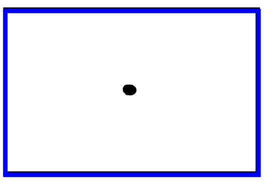
1

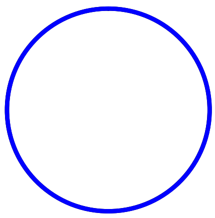
4) H

2

Point Symmetry

A figure has point symmetry if you rotate it 180 degrees about a fixed point and the figure stays the same





S

Does the figure have point symmetry, line symmetry or both?

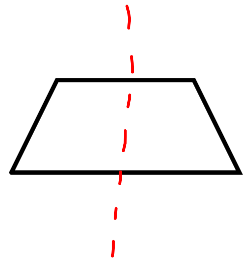
1) 8

Point

Line (2)

2) N

Point

3) 

A figure has rotational symmetry if the figure is its own image under a rotation

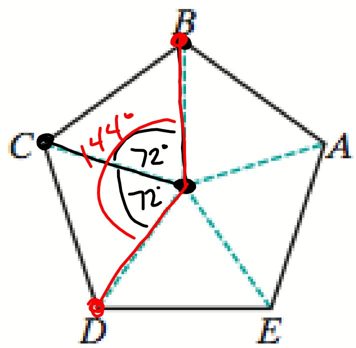
All regular polygons (all sides and angles congruent) have rotational symmetry!

$$\frac{360}{n}$$

where n is the number of sides of the polygon

If a regular pentagon is rotated counterclockwise around its center, find the minimum number of degrees it must be rotated to carry the pentagon onto itself

$\frac{360}{5} = \boxed{72°}$



$B \to D$

$R_{144°}$

$\boxed{72° \text{ or ANY MULTIPLE of } 72°}$

A regular decagon → 10 sides is rotated n degrees about its center, carrying the decagon onto itself. The value of n could be

~~1)~~ 10° ~~3)~~ 225°
~~2)~~ 150° 4) 252°

$\frac{360}{10} = 36°$

Point P is at the center of equilateral triangle ABC

Under a rotation about P for which the image of A is B, find:

$\frac{360}{3} = 120°$

a. The number of degrees in the rotation.

b. The image of B. C

c. The image of $\overline{CA}$. $\overline{AB}$

d. The image of $\angle CAB$.

$\angle ABC$