

Translations $T_{(a,b)}(x,y) = (x+a, y+b)$

$k > 1$ then the image gets bigger

Dilations $D_k(x,y) = (kx, ky)$

$0 < k < 1$ image gets smaller

Reflections: $r_{x\text{-axis}}(x,y) = (x, -y)$

$r_{y\text{-axis}}(x,y) = (-x, y)$

$r_{(y=x)}(x,y) = (y, x)$

$R_0(x,y) = (-x, -y)$

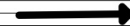
Rotations: $R_{(90)}(x,y) = (-y, x)$

$R_{(180)} = R_0$

$R_{(270)}(x,y) = (y, -x)$

Symmetry - point (if you turn it upside down and it looks the same)
, line, rotational

T - Transformations



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Rotational symmetry - find the minimum number of degrees of rotational symmetry
divide 360 by the number of sides

Isometry - preserves distance

Direct isometry - preserves orientation, translations, rotations, point reflections

Opposite isometry - does not preserve orientation - line reflections

Finding areas in the coordinate plane

Compositions of Transformations - always work backwards

$$D_7 \circ T_{(3,4)}(1,6)$$

$$D_7(T_{(6,4)}(7,6))$$

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