

H. Geom.**Transformations**

Name _____

1. What is the image of the point (4, -3) after each of the transformations below?
 (Note: these are *not* cumulative). *Note: all rotations are counter-clockwise.*

- | | | |
|------------------------------|--------------------------|--------------------------|
| a) $r_{x\text{-axis}}$ _____ | d) $r_{y=x}$ _____ | g) $T(x-2, y+3)$ _____ |
| b) R_{90° _____ | e) R_{180° _____ | h) $r_{y=-x}$ _____ |
| c) $r_{y\text{-axis}}$ _____ | f) $r(0,0)$ _____ | i) R_{270° _____ |

2. Point P is in the second quadrant. In which quadrant would P end up after each (non-cumulative) transformation below?

- | | | |
|------------------------------|--------------------------|------------------------|
| a) R_{90° _____ | c) $r_{y=-x}$ _____ | e) $T(x-6, y+5)$ _____ |
| b) $r_{y\text{-axis}}$ _____ | d) R_{180° _____ | f) $r_{y=-1}$ _____ |

3. Determine the *single* transformation that is equivalent to each combination below.

- | | |
|--|--|
| a) $r_{x\text{-axis}}$ followed by $r(0,0)$
_____ | c) R_{90° followed by $r_{y\text{-axis}}$
_____ |
| b) $r_{y=x}$ followed by R_{180°
_____ | d) $r_{y=x}$ followed by $r_{y=-x}$
_____ |

4. Consider the triangle A(2,5); B(2,1); C(4,1). Determine the transformation, or pair of transformations, that would move triangle ABC to the new locations below.

- | | |
|--|---|
| a) A'(5,-2); B'(1,-2); C'(1,-4)
_____ | c) A'(-5,10); B'(-5,6); C'(-3,6)
_____ |
| b) A'(-10,-4); B'(-2,-4); C'(-2,-8)
_____ | d) A'(0,12); B'(0,0); C'(6,0)
_____ |

5. A square is unchanged (in size, orientation, or location) by a reflection over its diagonal. Can you think of a geometric object that is unchanged by ...

- | | | |
|-----------------------------|------------------|---------------|
| a) a rotation of 90° | b) a translation | c) a dilation |
|-----------------------------|------------------|---------------|