

NAME: \_\_\_\_\_

## UNIT 5 • TRANSFORMATIONS IN THE COORDINATE PLANE

### Lesson 2: Defining and Applying Rotations, Reflections, and Translations

#### Practice 5.2.2: Applying Rotations, Reflections, and Translations

Use what you know about transformations to complete each problem.

1. Graph the transformation  $T_{2,-3}(T_{2,5}(\triangle ABC))$  where  $A(1, 2)$ ,  $B(2, 7)$ , and  $C(4, 1)$ .
2. Graph the transformation  $R_{180}(T_{5,1}(\triangle ABC))$  where  $A(-4, -2)$ ,  $B(-6, -7)$ , and  $C(-2, -3)$ .
3. In what quadrant is  $T_{5,4}(T_{1,1}(P))$  when  $P(-7, 1)$ ?
4. Given  $R_{90}(x, y) = (-y, x)$  and  $P(5, -1)$ , what is  $R_{90}(T_{1,1}(P))$ ?
5. Given  $\square ABCD$  with points  $A(-2, 2)$ ,  $B(-1, 2)$ ,  $C(-1, 1)$ , and  $D(-2, 1)$ , what is  $R_{180}(\square ABCD)$ ?
6. Using a rotation  $R_m$ , can you create a function  $R_m(\square ABCD)$  that is equivalent to  $r_{x\text{-axis}}(r_{y\text{-axis}}(\square ABCD))$ ?
7. A reflection through what line will move  $P(6, -13)$  to  $P'(6, 13)$ ?
8. Graph the transformation  $r_{y\text{-axis}}(r_{x\text{-axis}}(\triangle DEF))$  where  $D(9, 10)$ ,  $E(8, -2)$ , and  $F(1, 4)$ .
9. Graph the transformation  $R_{180}(T_{5,1}(\triangle ABC))$  where  $A(-1, -1)$ ,  $B(-7, -2)$ , and  $C(-4, -9)$ .
10. Given the graph below, determine the transformation.

