Transformations

Name: _____ Date: _____



Mr Boston says: Use tracing paper for rotations.

A. Moving points

Use squared paper or tracing paper to help.

1 Translate (−5, −2) by the vector (3, −2).

Answer: _____

2 Translate (5, −5) by the vector (−4, 5).

Answer: _____

3 Reflect (−5, 4) in the x-axis.

Answer: _____

4 Reflect (−1, 4) in the y-axis.

Answer: _____

5 Rotate (−4, −6) 180° about the origin.

Answer: _____

6 Rotate (−5, −3) 90° clockwise about the origin.

Answer: _____

7 Reflect (4, 1) in the line y = x.

Answer: _____

8 Reflect (5, 2) in the line x = 3.

Answer: _____

B. Enlargement

9 A 4 cm by 3 cm rectangle is enlarged by scale factor 3. What are the new side lengths?

Answer: _____

10 By what factor does the area of that rectangle increase?

Answer: _____

11 A triangle has sides 6, 8 and 10 cm. It is enlarged by scale factor ½. New sides?

Answer: _____

12 Which transformations give a congruent shape?

Answer: _____

Answers for grown-ups

Transformations

1. Translate (−5, −2) by the vector (3, −2). → **(−2, −4)**
2. Translate (5, −5) by the vector (−4, 5). → **(1, 0)**
3. Reflect (−5, 4) in the x-axis. → **(−5, −4)**
4. Reflect (−1, 4) in the y-axis. → **(1, 4)**
5. Rotate (−4, −6) 180° about the origin. → **(4, 6)**
6. Rotate (−5, −3) 90° clockwise about the origin. → **(−3, 5)**
7. Reflect (4, 1) in the line y = x. → **(1, 4)**
8. Reflect (5, 2) in the line x = 3. → **(1, 2)**
9. A 4 cm by 3 cm rectangle is enlarged by scale factor 3. What are the new side lengths? → **12 cm by 9 cm**
10. By what factor does the area of that rectangle increase? → **9 (12 cm² → 108 cm²)**
11. A triangle has sides 6, 8 and 10 cm. It is enlarged by scale factor ½. New sides? → **3, 4 and 5 cm**
12. Which transformations give a congruent shape? → **translation, reflection and rotation**