

## Unit 2: Congruence

### PRACTICE

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Solve each problem and write your exact answer (a number, coordinate pair, or short value) on the line. No figures needed — every problem is self-contained.

1. A rigid transformation (translation) maps segment AB onto segment A'B'. If  $AB = 8$ , what is the length of A'B'?

Answer: \_\_\_\_\_

2. Triangle ABC is congruent to triangle DEF with  $AB = 7$ ,  $BC = 9$ , and  $CA = 12$ . Find the length of EF.

Answer: \_\_\_\_\_

3. Triangle ABC is congruent to triangle DEF. If angle A =  $55^\circ$  and angle B =  $65^\circ$ , find the measure of angle F.

Answer: \_\_\_\_\_

4. Under the translation  $(x, y) \rightarrow (x + 5, y - 2)$ , find the image of the point  $(3, -4)$ .

Answer: \_\_\_\_\_

5. A reflection across the x-axis maps the point  $(6, -2)$  to its image. Give the coordinates of the image.

Answer: \_\_\_\_\_

6. A reflection across the y-axis maps the point  $(-3, 7)$  to its image. Give the coordinates of the image.

Answer: \_\_\_\_\_

7. A  $90^\circ$  counterclockwise rotation about the origin maps the point  $(2, 5)$  to its image. Give the coordinates of the image.

Answer: \_\_\_\_\_

8. A  $180^\circ$  rotation about the origin maps the point  $(4, -9)$  to its image. Give the coordinates of the image.

Answer: \_\_\_\_\_

9. Triangle ABC is congruent to triangle DEF. If  $AB = 2x + 3$  and its corresponding side  $DE = 11$ , find the value of  $x$ .

Answer: \_\_\_\_\_

10. Triangle ABC is congruent to triangle DEF. The measure of angle A is  $3x$  degrees and its corresponding angle D measures  $45^\circ$ . Find  $x$ .

Answer: \_\_\_\_\_

11. Triangle PQR is congruent to triangle STU. The sides of triangle PQR measure 5, 12, and 13. Find the perimeter of triangle STU.

Answer: \_\_\_\_\_

12. A point undergoes the translation  $(x, y) \rightarrow (x + 3, y - 1)$  followed by the translation  $(x, y) \rightarrow (x + 2, y + 5)$ . Find the final image of the point  $(1, 1)$ .

Answer: \_\_\_\_\_