6-6: Describe Dilations

1. Sample answer: The image and preimage are the same shape and orientation, but not the same size. An enlargement makes the image larger than the preimage. A reduction makes the image smaller than the preimage.

2. Sample answer: A reduction will occur when the scale factor of the dilation is between 0 and 1. An enlargement will occur when the scale factor is greater than 1.

3. 90°; Sample answer: A dilation keeps the same shape, and a rectangle has four 90-degree angles.

4. 4; Sample answer: The ratio of the base length of Figure 3 to the base length of Figure 1 is 4 to 1, so the scale factor is 4.

5. (6,6), (12,6), and (9,12)

6. Figure 2 to Figure 1 and Figure 3 to Figure 2

7. (0,0), (2,0), (0,2)
    2
    (0,0), (4,0), (0,4)

8. 3

9. ⅔ ; Sample answer: My friend found the scale factor that enlarges △A'B'C' to △ABC.

10. Reduction; ⅓

11. a. ¼

    b. Area of Q'R'S'T' = 9
       Area of QRST = 144;
    Sample answer: Since the length of each side of QRST is 4 times the length of each side of Q'R'S'T', the area of QRST is 4 x 4, or 16 times greater, than the area of Q'R'S'T'.

12. A

13. (36,0); Sample answer: Multiply both the x- and y-coordinates of point D by the scale factor, 6.