Dilations

**The solid-line figure is a dilation of the dashed-line figure. The labeled point is the center of dilation. Tell whether the dilation is an enlargement or a reduction. Then find the scale factor of the dilation.**



**2.**

**1.**



**4.**

**3.**



**6.**

**5.**



**8.**

**7.**



**You look at each object described in Exercises 9–11 under a magnifying glass.
Find the actual dimension of each object.**

**9.** The image of a ribbon is 10 times the ribbon’s actual size and has a width of 1 cm.

**10.** The image of a caterpillar is three times the caterpillar’s actual size and has a width of 4 in.

**11.** The image of a beetle is five times the beetle’s actual size and has a length of 1.75 cm.

**12.** Δ*P′Q′R′* is a dilation image of Δ*PQR.* The scale factor for the dilation is 0.12. Is the dilation an enlargement or a reduction?

**A dilation has center (0, 0). Find the image of each point for the given scale factor.**

|  |  |
| --- | --- |
| **13.** *X*(3, 4); *D*7(*X*) | **14.** *P*(–3, 5); *D*1. 2(*P*) |
| **15.** *Q*(0, 4); *D*3.4(*Q)* | **16.** *T*(–2, –1); *D*4(*T*) |
| **17.** *S*(5, –6); (*S*) | **18.** *M*(2, 2); *D*5(*M*) |

**19.** A square has 16-cm sides. Describe its image for a dilation with center at one of the vertices and scale factor 0.8.

**20.** Graph pentagon *ABCDE* and its image *A*′*B*′*C*′*D*′*E*′ for a dilation with center (0, 0) and a scale factor of 1.5. The vertices of *ABCDE* are: *A*(0, 3), *B*(3, 3), *C*(3, 0), *D*(0, –3), *E*(–1, 0).