Rotations

**Copy each figure and point *P.* Draw the image of each figure for the given
rotation about *P.* Use prime notation to label the vertices of the image.**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.** 180° | **Untitled-4%20copy** | **2.** 90° | **Untitled-2%20copy** |

**Point *O* is the center of regular hexagon (hint: this means each angle at the center is 60 degrees) *BCDEFG.* Find the image of the given point or segment for the given rotation.**

**7.** *r*(120**°**, *O*)(*F*)

**8.** *r*(180**°**, *O*)(*B*)

**9.** *r*(300**°**, *O*)()

**10.** *r*(360**°**, *O*)()

**11.** *r*(60**°**, *O*)(*E*)

**12.** *r*(240**°**, *O*)()

**For Exercises 13–15, Δ*ABC* has vertices *A*(2, 2), *B*(3, – 2), and *C*(–1, 3).**

|  |  |  |
| --- | --- | --- |
| **13.** Graph *r*(90º, *O*)(∆*ABC*). | **14.** Graph *r*(180º, *O*)(∆*ABC*). | **15.** Graph *r*(270º, *O*)(∆*ABC*). |
| Untitled-8%20copy | Untitled-9copy | Untitled-10%20copy |

**16.**The vertices of *PQRS* have coordinates *P*(–1, 5), *Q*(3, 4), *R*(2, – 4), and *S*(–3, – 2). What are the coordinates of the vertices of *r*(270º, *O*)(*PQRS*)?

**17.** The vertices of *r*(90º, *O*) (*KLMN*) have coordinates *K’*(–3, 2), *L*’(2, 3), *M’*(4, – 2), and *N’*(–2, – 4). What are the coordinates of the vertices of *KLMN*?

**18.Reasoning** The vertices of quadrilateral *ABCD* have coordinates *A*(4, 3), *B*(–3, 4), *C*(–4, – 3), and *D*(3, – 4). Explain how the transformation *r*(90º, *O*)(*ABCD*) = *BCDA* can be used to show that the quadrilateral is square.

**22.** ∆*RST* has vertices at *R*(0, 3), *S*(4, 0), and *T*(0, 0). What are the coordinates of the vertices of *r*(–90º, *T*)(∆*RST*)?

**23.** ∆*FGH* has vertices *F*(–1, 2), *G*(0, 0), and *H*(3, – 1). What are the coordinates of the vertices of *r*(–90º, *G*)(∆*FGH*)?