TEXAS TAKS PRACTICE
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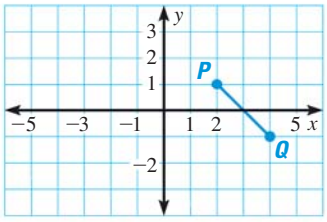
COORDINATE GEOMETRY PROBLEMS ON TAKS

Below are examples of coordinate geometry problems in multiple choice format. Try solving the problems before looking at the solutions. (Cover the solutions with a piece of paper.) Then check your solutions against the ones given.

1. Rotate $\overline{PQ}$ 180° about the origin. In which quadrant is the image of point Q?



A Quadrant I

B Quadrant II

C Quadrant III

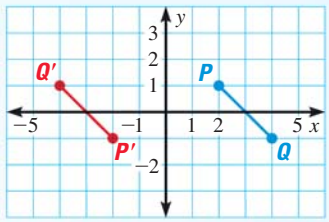
D Quadrant IV

Solution

When a point (a, b) is rotated 180° about the origin, the point (a, b) is mapped onto the point (−a, −b). Therefore:

$P(2, 1) \rightarrow P'(-2, -1)$ and $Q(4, -1) \rightarrow Q'(-4, 1)$

Draw $\overline{PQ}$ and its image $\overline{P'Q'}$.



Point Q′ is in Quadrant II.

The correct answer is B.

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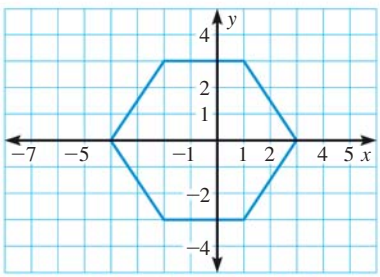
2. Which points are the vertices of the hexagon?



F (−5, 0), (−2, 3), (1, 3), (4, 0), (2, −3), and (−2, −3)

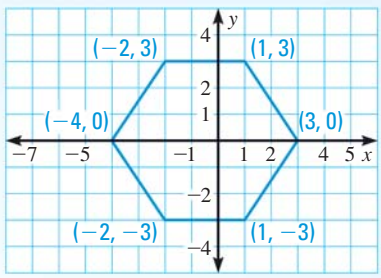
G (−2, 3), (1, 3), (3, 0), (1, −3), (−2, −3), and (−4, 0)

H (−1, 3), (1, 3), (2, 0), (1, −3), (−3, −3), and (−4, 0)

J (1, 3), (2, 0), (−3, 1), (−3, −2), (−4, 0), and (−2, 3)

Solution

Use the coordinate plane to identify the vertices of the hexagon.



The vertices are (−2, 3), (1, 3), (3, 0), (1, −3), (−2, −3), and (−4, 0).

The correct answer is G.

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