

HW: p. 424: 39, 41, 43

6-7 Polygons in the Coordinate Plane

Quick Review

To determine whether sides or diagonals are congruent, use the Distance Formula. To determine the coordinate of the midpoint of a side, or whether the diagonals bisect each other, use the Midpoint Formula. To determine whether opposite sides are parallel, or whether diagonals or sides are perpendicular, use the Slope Formula.

Example

$\triangle XYZ$ has vertices $X(1, 0)$, $Y(-2, -4)$, and $Z(4, -4)$. Is $\triangle XYZ$ *scalene*, *isosceles*, or *equilateral*?

To find the lengths of the legs, use the Distance Formula.

$$XY = \sqrt{(-2 - 1)^2 + (-4 - 0)^2} = \sqrt{9 + 16} = 5$$

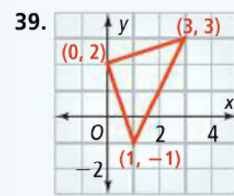
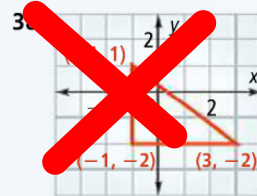
$$YZ = \sqrt{(4 - (-2))^2 + (-4 - (-4))^2} = \sqrt{36 + 0} = 6$$

$$XZ = \sqrt{(4 - 1)^2 + (-4 - 0)^2} = \sqrt{9 + 16} = 5$$

Two side lengths are equal, so $\triangle XYZ$ is isosceles.

Exercises

Determine whether $\triangle ABC$ is *scalene*, *isosceles*, or *equilateral*.



What is the most precise classification of the quadrilateral?

41. $F(-13, 7)$, $I(1, 12)$, $N(15, 7)$, $E(1, -5)$

43. $W(-11, 4)$, $H(-9, 10)$, $A(2, 10)$, $T(4, 4)$