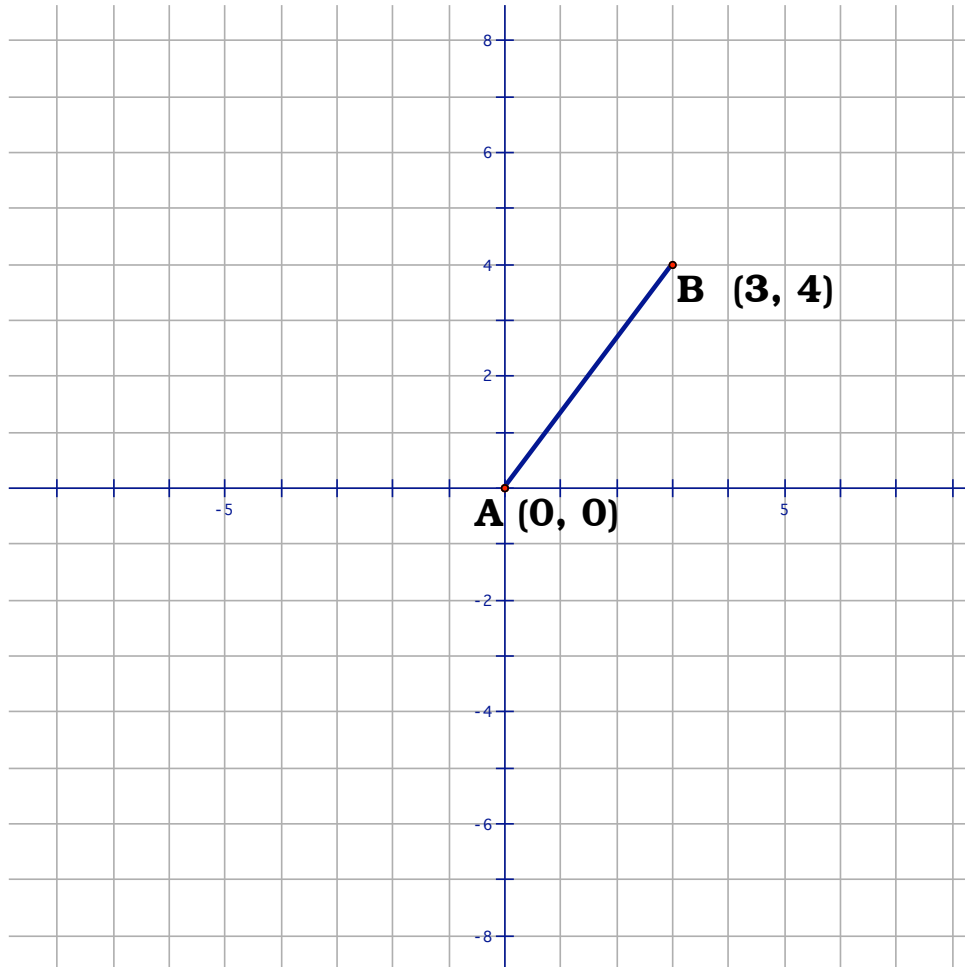
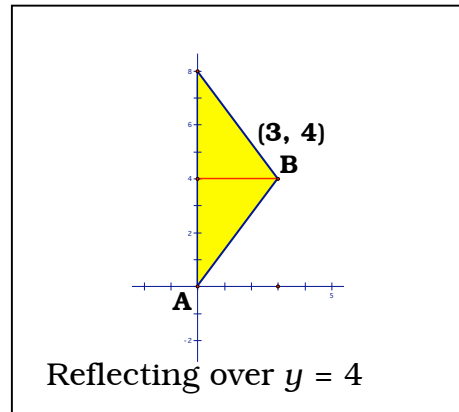
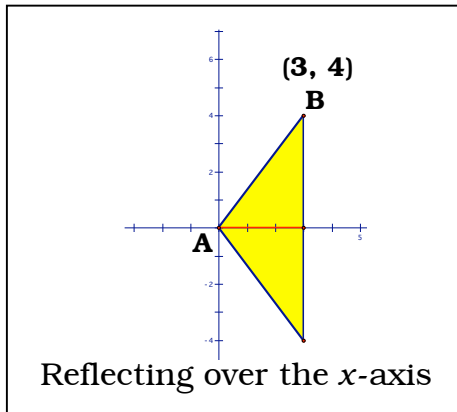
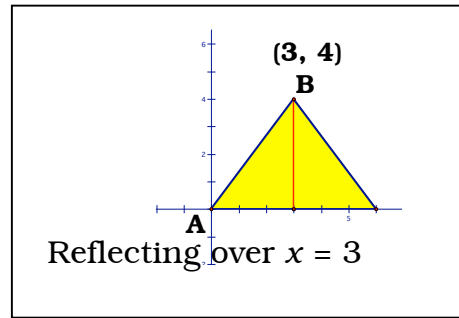
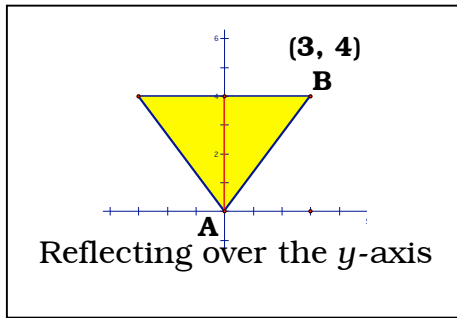


LET'S GET COORDINATED

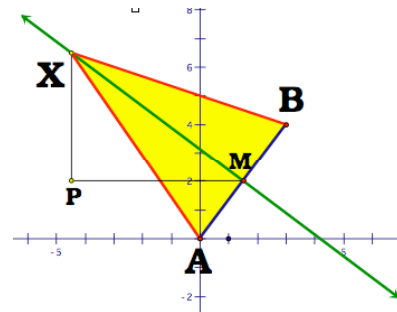
Points **A** and **B** are two of the vertices of a geometric shape.



1. Point **X** can be used with points **A** and **B** as vertices of an **isosceles triangle**. Find the coordinates of as many points for **X** as you can. Explain what you did to identify the locations of point **X**.
[Answer shown on next page.]
2. Find the coordinates of as many pairs of points **X** and **Y** as you can that can be used with **A** and **B** to be vertices of a rhombus.
3. Explain how to calculate the areas of the figures you found in items 1. and 2.
4. Point **C** is somewhere on the x-axis so $\triangle ABC$ has an area of exactly 8 square units. Find as many locations as you can for point **C**.



There are an infinite number of locations for point **X** on the perpendicular bisector of segment **AB**;
Use $XP^2 + PM^2 = XM^2$ to find **XM**;
Area $\triangle AXB = .5 \cdot AB \cdot XM = 2.5 \cdot XM$.



Since **AB = 5**, then the circles centered at **A** and **B** with radius 5 give an infinite number of points each of which generates an isosceles triangle with legs of 5 and a base that is a chord (in red). Points **X1** and **X2** are representatives of this set. Points **N1** and **N2** are not in the feasible set since they are collinear with points **A** and **B** and therefore would not create a triangle.

