

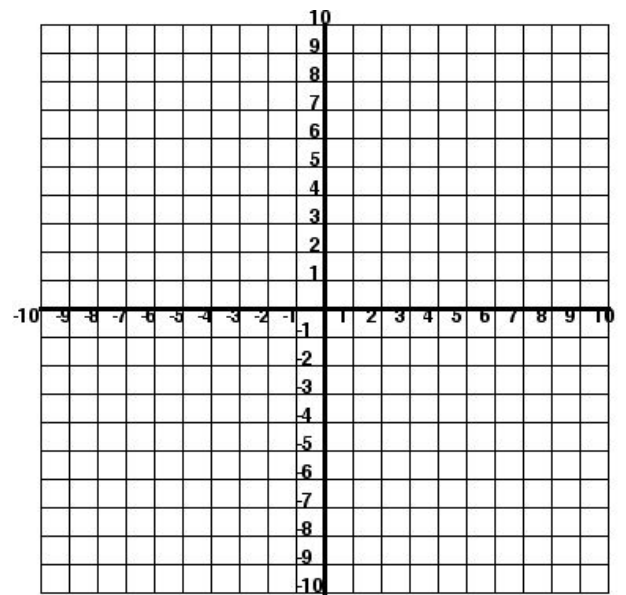
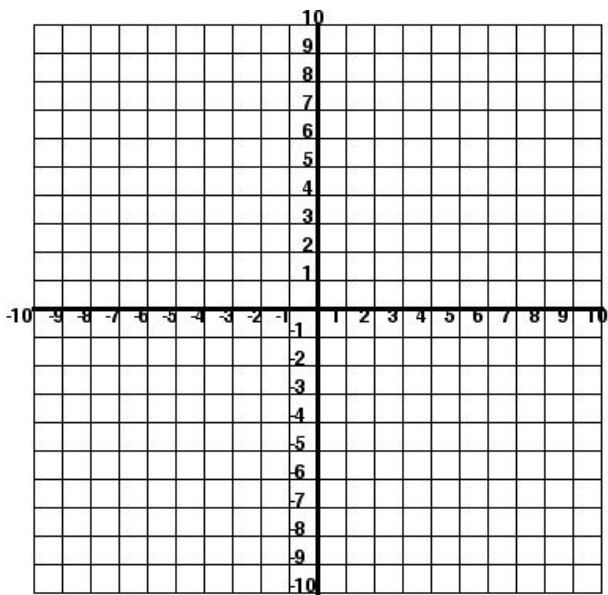
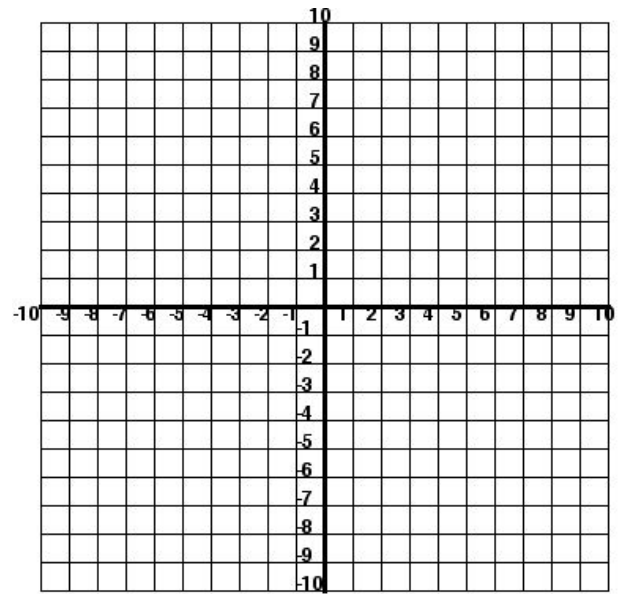
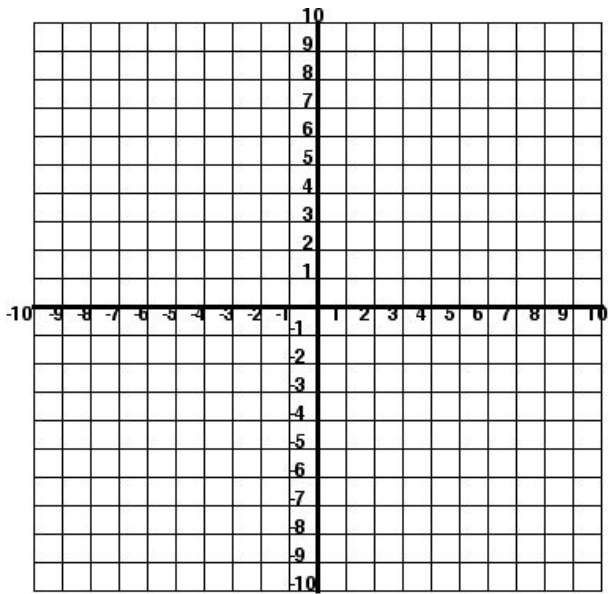
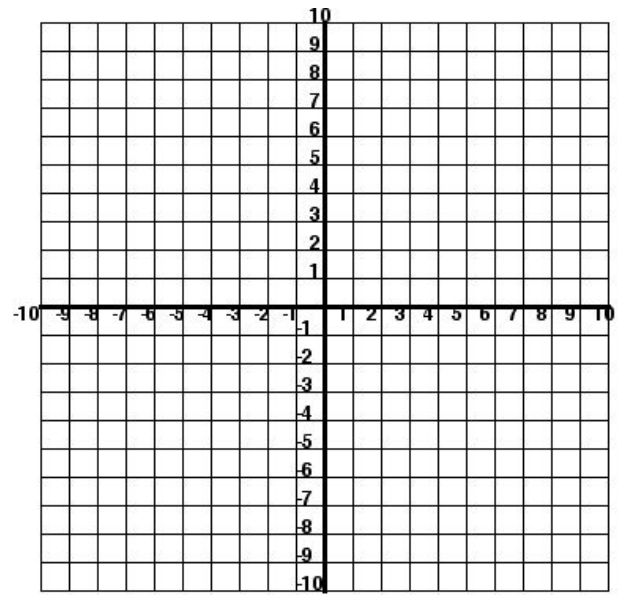
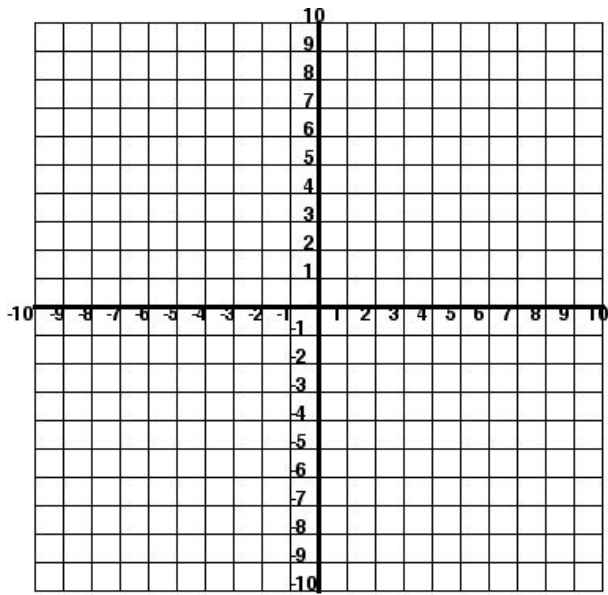
## **Constructing Geometric Figures**

Using graph paper, students will construct figures according to given specifications. They will then record the coordinates of the vertices of the figures. This is a good task to give to students in pairs or small groups as some of the situations will produce more than one geometric figure. Unless the problem specifically asks for all the figures that can be drawn, one figure will suffice.

## CONSTRUCTING GEOMETRIC FIGURES

- Directions:
1. Using the coordinate graphs, construct the figures described in the left column.
  2. In the right column write the coordinates of the vertices for the figures you constructed from the left column.

CONSTRUCT	COORDINATES
1. A square with a side of 2 units	
2. A rectangle with the dimensions of 2 x 5 units	
3. A square with a side of 6 units and one vertex at (1, 2)	
4. How many different squares can be constructed meeting the requirements of #3?  Construct them and write the coordinates of the vertices.	
5. A rectangle with one vertex at (1, 3) and dimensions of 2 x 3 units	
6. How many different rectangles can be constructed meeting the requirements of #5?  Construct them and write the coordinates of the vertices.	
7. Construct a square with one side having the endpoints (3, 4) and (-2, 4).	
8. How many other squares can you construct that meet the requirements of #7?  Construct them and write the coordinates.	
9. Construct all the right triangles you can with the vertex of the right angle at (3, 5) and the dimensions of the legs equaling 2.5 and 3 units.	



## CONSTRUCTING GEOMETRIC FIGURES Answer Key

- Directions:
1. Using the coordinate graphs, construct the figures described in the left column.
  2. In the right column write the coordinates of the vertices for the figures you constructed from the left column.

CONSTRUCT	COORDINATES								
1. A square with a side of 2 units	Answers will vary.								
2. A rectangle with the dimensions of 2 x 5 units	Answers will vary.								
3. A square with a side of 6 units and one vertex at (1, 2)	One possible answer is (1, 2), (1, 8), (7, 8), and (7, 2). See #4 for other possible answers.								
4. How many different squares can be constructed meeting the requirements of #3?  Construct them and write the coordinates of the vertices.	Square 2: (1, 2), (1, -4), (7, 2), and (7, -4) Square 3: (1, 2), (-5, 2), (-5, -4) and (1, -4) Square 4: (1, 2), (-5, 2), (-5, 8) and (1, 8)								
5. A rectangle with one vertex at (1, 3) and dimensions of 2 x 3 units	One possible answer is (1, 3), (1, 5), (4, 3), and (4, 5). See #6 for other possible answers.								
6. How many different rectangles can be constructed meeting the requirements of #5?  Construct them and write the coordinates of the vertices.	Rectangle 1: (1, 3), (1, 6), (3, 3), and (3, 6) Rectangle 2: (1, 3), (1, 0), (3, 3), and (3, 0) Rectangle 3: (1, 3), (1, 1), (4, 1), and (4, 3) Rectangle 4: (1, 3), (1, 6), (-1, 3), and (-1, 6) Rectangle 5: (1, 3), (1, 5), (-2, 3), and (-2, 5) Rectangle 6: (1, 3), (1, 1), (-2, 1), and (-2, 3) Rectangle 7: (1, 3), (1, 0), (-1, 0), and (-1, 3)								
7. Construct a square with one side having the endpoints (3, 4) and (-2, 4).	One possible answer is (3, 4), (-2, 4), (-2, 9), and (3, 9). See #8 for other possible answers.								
8. How many other squares can you construct that meet the requirements of #7?  Construct them and write the coordinates.	There are only 2 squares that can be constructed. In addition to the square from #7, the other square's coordinates will be (3, 4), (-2, 4), (-2, -1) and (3, -1)								
9. Construct all the right triangles you can with the vertex of the right angle at (3, 5) and the dimensions of the legs equaling 2.5 and 3 units.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">(3, 5), (3, 8), (5.5, 5)</td> <td style="padding: 2px 5px;">(3, 5), (3, 7.5), (6, 5)</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">(3, 5), (3, 8), (0.5, 5)</td> <td style="padding: 2px 5px;">(3, 5), (0, 5), (3, 7.5)</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">(3, 5), (0, 5), (3, 2.5)</td> <td style="padding: 2px 5px;">(3, 5), (0.5, 5), (3, 2)</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">(3, 5), (3, 2), (5.5, 5)</td> <td style="padding: 2px 5px;">(3, 5), (3, 2.5), (6, 5)</td> </tr> </table>	(3, 5), (3, 8), (5.5, 5)	(3, 5), (3, 7.5), (6, 5)	(3, 5), (3, 8), (0.5, 5)	(3, 5), (0, 5), (3, 7.5)	(3, 5), (0, 5), (3, 2.5)	(3, 5), (0.5, 5), (3, 2)	(3, 5), (3, 2), (5.5, 5)	(3, 5), (3, 2.5), (6, 5)
(3, 5), (3, 8), (5.5, 5)	(3, 5), (3, 7.5), (6, 5)								
(3, 5), (3, 8), (0.5, 5)	(3, 5), (0, 5), (3, 7.5)								
(3, 5), (0, 5), (3, 2.5)	(3, 5), (0.5, 5), (3, 2)								
(3, 5), (3, 2), (5.5, 5)	(3, 5), (3, 2.5), (6, 5)								