

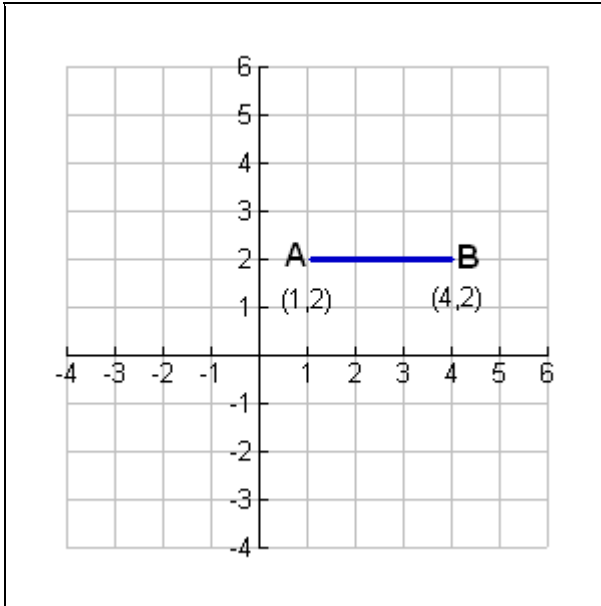
Special Right Triangles on a Grid

Name _____

Answer the following problems dealing with special right triangles on a coordinate axes.

You may wish to use graph paper for some of the questions.

1.



The segment connecting point $A(1,2)$ to point $B(4,2)$ is one side of a 30° - 60° - 90° triangle, $\triangle ABC$, but you do not know which side. It could be the shorter leg, the longer leg or the hypotenuse.

How many 30° - 60° - 90° triangles can be drawn under these conditions?

For each triangle, state:

- the coordinates of point C .
- the lengths of the 3 sides.

- $\triangle MAP$ is a 45° - 45° - 90° triangle. If point A is at $(-2,1)$, point P is at $(6,1)$, and the right angle is at P , find all possible coordinates of point M which lie above \overline{AP} .
- $\triangle BUG$ is a 30° - 60° - 90° triangle with the right angle at U and the longer leg \overline{UG} . If point U is at $(-4,-5)$ and point G is at $(-4,6)$, find all possible coordinates of point B which lie to the right of \overline{UG} .
- $\triangle ABC$ is a 45° - 45° - 90° triangle with the right angle at A . Find all possible coordinates of point A in Quadrant I, if B is at $(3,-1)$ and C is at $(3,5)$.
- $\triangle XYZ$ is a 30° - 60° - 90° triangle with the right angle at Y . Find all possible coordinates of point X , if point Y is located at $(-1, 4)$ and Z is at $(11,4)$. Assume X will lie above \overline{YZ} .