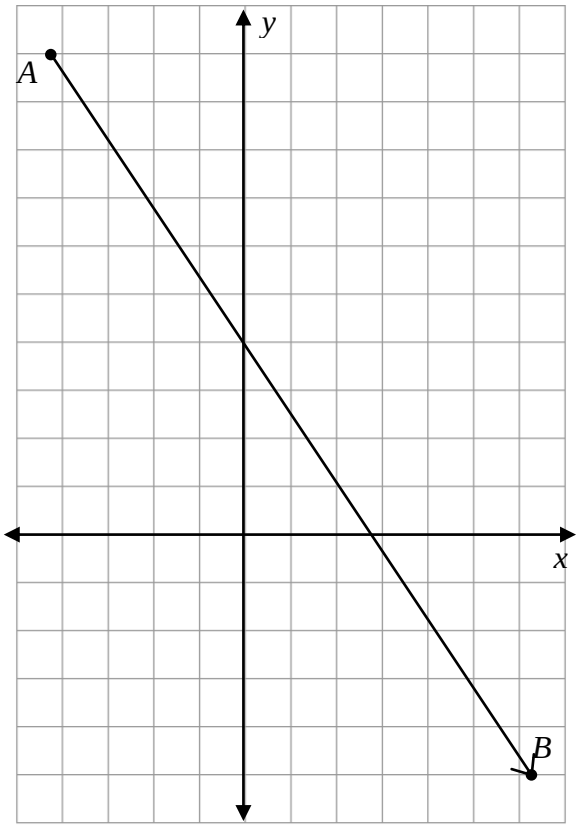
Name:_____ **Date:_____**

Geometry Notes CG - 8: Dividing a Segment in Proportion

Ex: Find the coordinates of the point *P* on the directed line segment from *A*(–4, 10) to *B*(6, –5) that partitions the segment into a ratio of 3:2.



Name:_____ **Date:_____**

Geometry HW: CG - 8

1. Find the coordinates of the point P on the directed line segment from $A(-8, 10)$ to $B(13, -4)$ that partitions the segment into a ratio of 3:4.

2. Find the coordinates of the points P and Q that divide the segment from $J(-3, 1)$ to $K(9, 7)$ into three congruent parts. (What two ratios are implied here?)

3. Write the equation of the line that is the perpendicular bisector of $\overline{JK}$ with $J(-3, 1)$ and $K(9, 7)$.

4. a. Write the equation of the circle having center $(-2, 4)$ and radius $\sqrt{65}$.

   b. Does the point $(-8, 9)$ lie on the circle? Justify your answer.

   c. Find two points on the line $x = 5$ that lie on the circle.

5. Graph ΔABC having vertices $A(0, 4)$, $B(4, 14)$ and $C(8, 0)$.

   a. Find the midpoints of $\overline{AB}$, $\overline{BC}$ and $\overline{CA}$. Call them M, N and P respectively.

   b. Draw $\overline{AN}$, $\overline{BP}$ and $\overline{CM}$. These are called medians of the triangle.

   c. Find the point where all three medians intersect. Call it G. This is called the centroid of the triangle.

   d. Show that G divides each median in a 2:1 ratio.