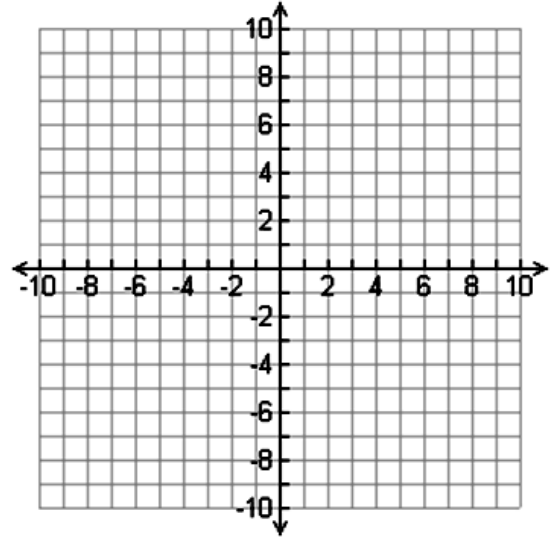


Answer the following questions and show all work!

- Given the points $A(-1, 2)$ and $B(7, 8)$, find the coordinates of the point P on the directed line segment \overline{AB} that partitions \overline{AB} in the ratio 1:3. Plot P along with segment AB .



- Find the coordinates of P so that P partitions \overline{AB} in the ratio 5:1 with $A(2, 4)$ and $B(8, 10)$.

- Find the coordinates of P so that P partitions \overline{AB} in the ratio 1 to 3 with $A(-5, 4)$ and $B(7, -4)$.

- Find the coordinates of P so that P partitions \overline{AB} in the ratio 3:4 with $A(-9, -9)$ and $B(5, -2)$.

- Find the coordinates of P so that P partitions \overline{AB} in the ratio $\frac{2}{5}$ if $A(-8, -2)$ and $B(6, 19)$.

6. If $A(4, 1)$ and $B(-3, 0)$, find the point that divides \overline{AB} two-thirds of the way from A to B .
7. For the directed line segment whose endpoints are $(0, 0)$ and $(4, 3)$, find the coordinates of the point that partitions the segment into a ratio of 3 to 2.
8. The map below shows a straight highways between the two towns of Ashton and Bedford imposed on a coordinate plane. Highway planners want to build two rest stops between the two towns so that the two rest stops divide the highway into three equal parts. What are the coordinates of the points where the rest stops should be located?

