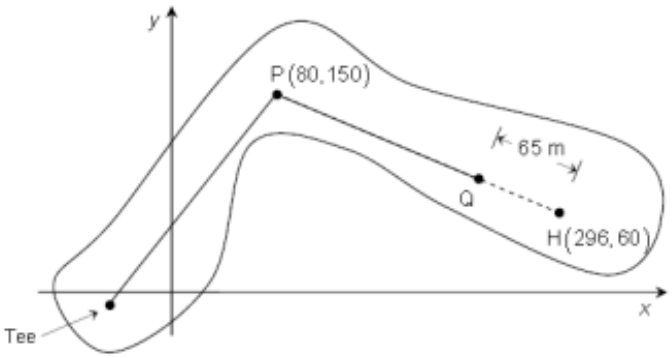
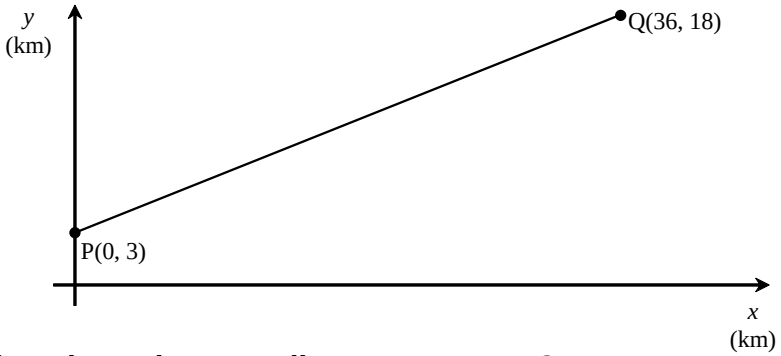
1. John hit the ball off the tee. The ball stopped at point P. From there, he hit the ball toward the hole represented by point H. When John hit the ball the second time, it left point P and travelled in a straight line. Unfortunately, the ball stopped at point Q, which is 65m from point H.



What is the distance between points P and Q? **169 m**

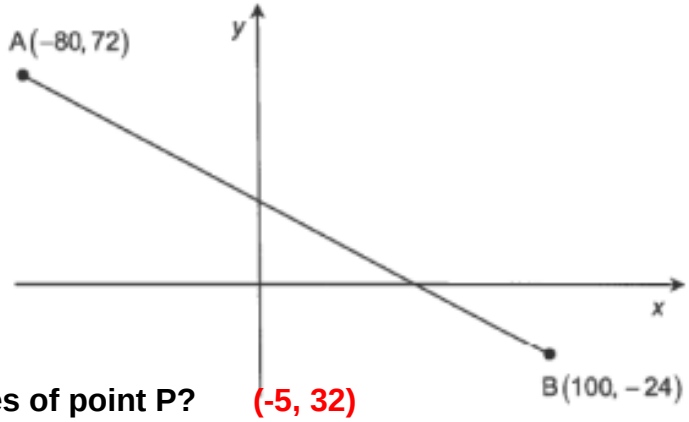
2. Cyclists are riding from point P to point Q. They stop to rest when they have cycled half of the distance of the bicycle path.



What are the coordinates of the point where these cyclists stop to rest?

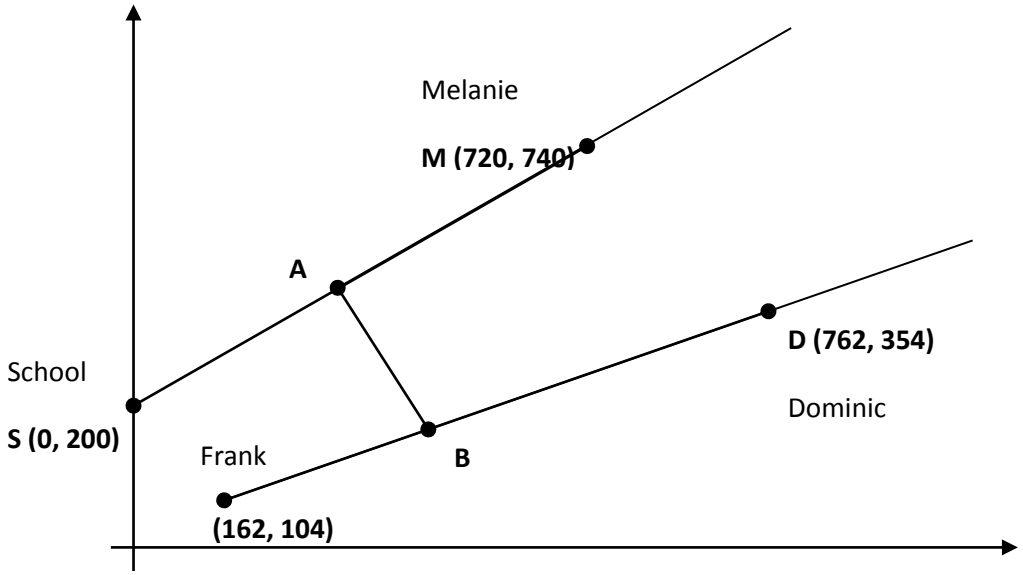
(18, 10.5)

3. Point P is on line segment AB. From point A, point P is located $\frac{5}{12}$ of the way along line segment AB.



What are the coordinates of point P? **(-5, 32)**

4. Dominic, Frank and Melanie must get to school. The points represent locations and the lines represent the roads that must be taken to travel to school.



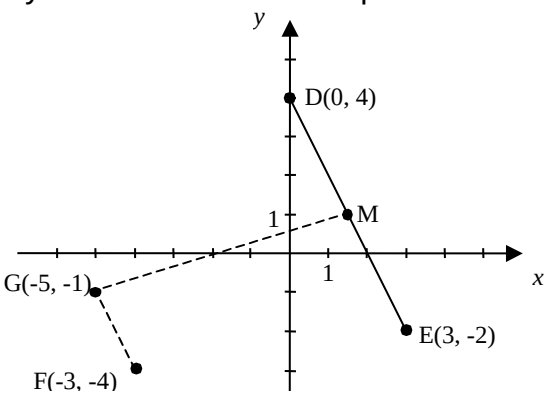
Point A is the midpoint of the line segment $\overline{SM}$. Line segment $\overline{FB}$ measures 260 metres. Line segment $\overline{AB}$ measures 270 metres. School bus service is only provided for students who must travel more than 1000m to get to school. **Which of these three students will be able to take the bus?** **Dominic only**

5. To service a new residential development, the town surveyor has drawn the new part of the water main that must be constructed.

$\overline{DE}$ represents the existing water main.

$\overline{FG}$ and $\overline{GM}$ represent the new water main,

where M is the midpoint of $\overline{DE}$.



What is the total length of the new water main FGM?

10.4 u

6. Point F is located at $\frac{3}{4}$ of the length of segment AB from A.

Point G is the midpoint of segment CD.

Show that the triangle EFG is an isosceles right triangle.

d(G, F)=7.07, d(G, E) =d(E, F)=5