

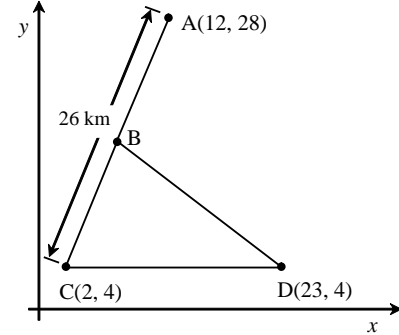
Name : \_\_\_\_\_

Group : \_\_\_\_\_

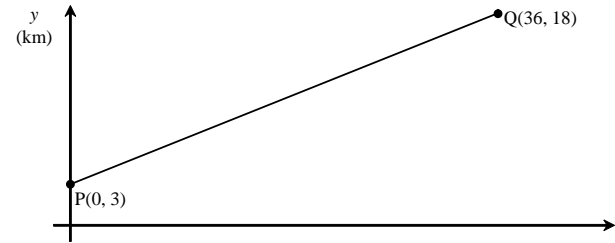
**MCS406 - Midpoint, Distance and Division Point**

1 Paul plots his trip on a Cartesian plane. He left Montreal, located at  $(0, 84)$ , and headed towards Québec, located at  $(168, 336)$ . After having travelled  $\frac{3}{4}$  of the distance, he decided to stop for lunch. **What are the coordinates of the town in which he stopped for lunch?**

2 In the Cartesian plane on the right, line segments AC, CD and BD represent bicycle paths. The scale of this graph is in kilometres. An information booth is located at each end of these paths. Booth B is located halfway between booths A and C. The path connecting booths A and C is 26 km long. Sabrina set off on her bicycle from booth C, rode by booth D and then, booth B before arriving at booth A. **What was the total length of Sabrina's bicycle ride?**

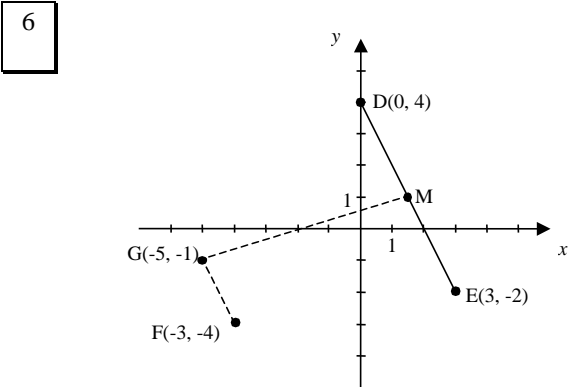
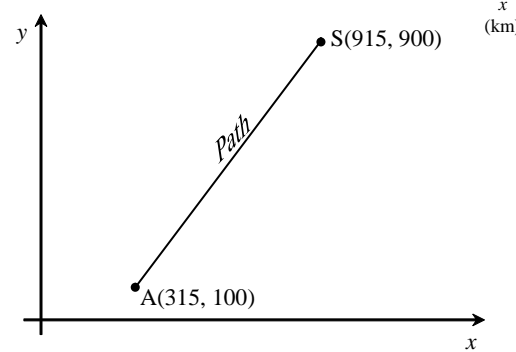


3 Points  $P(-12, 36)$  and  $R(72, 84)$  are the endpoints of a diameter of a circle drawn in a Cartesian coordinate system. **What are the coordinates of the centre of this circle?**



4 In the Cartesian plane on the right, segment PQ represents a bicycle path. A group of cyclists is riding from point P to point Q. They stop to rest when they have cycled twice as far as the distance they have left to cover. **What are the coordinates of the point where these cyclists stop to rest?**

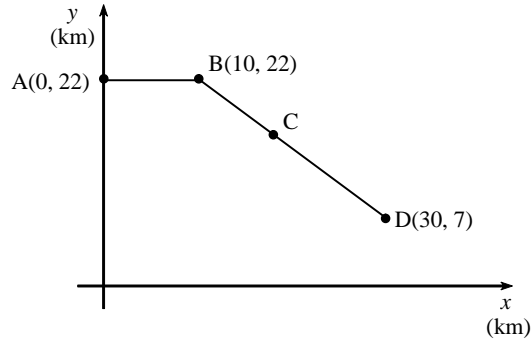
5 In the Cartesian plane on the right, point A represents the Arts Building and point S represents the Science Building on a university campus. The library on this university campus is located along the linear path connecting these two buildings. The distance between the library and the Science Building is 4 times the distance between the library and the Arts Building. **What are the coordinates of the point representing the location of the library?**



To service a new residential development, the town surveyor has drawn on a Cartesian plane, at left, 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?**

7

In the Cartesian plane on the represent two streets along Points A, B, C and D run. The distance between distance between checkpoints of point C?



right, line segment AB and BD which runners participants must travel. represent checkpoints set up for the checkpoints A and B is equal to the B and C. **What are the coordinates**