In a remote area of Australia, the Royal Flying Doctor Service has an aircraft base located at *E* and another aircraft base located at *F*.

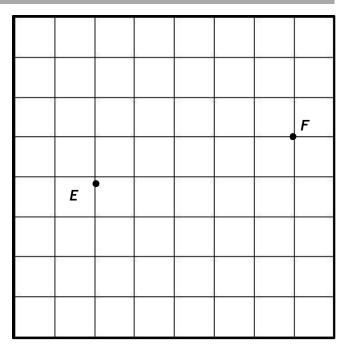
All emergency calls are received at a central call centre and ar ethent ransferred to the closest aircraft base.

The map of the area shows the position of the two aircraft bases.

You need to divide the area into two regions so that any e mergency is responded to from the nearest aircraft base.

The scale on the map is

"grid square side = 20 km".



- **Hint 1:** Mark in and name a point which is the same distance from both aircraft bases.
- Hint 2: Is/are there other point(s) which is/are the same distance from both aircraft bases and if there is/are where would it/they be?
- (i) Is there a special name for the line which you have drawn?

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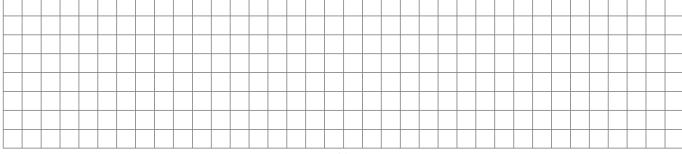
(ii) What is the approximate area of each region?

E :		F:	
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(iii) The number of emergency calls is consistent for all of the area. You have 56 people overall to staff the two aircraft bases. How many staff do you need at each base?



(iv) The area has recently received government funding to set up one specialist emergency neurological team which must service both bases. Assuming the number of emergency calls is consistent for all of the area, where is the best location to place this team? Give a reason for your choice.

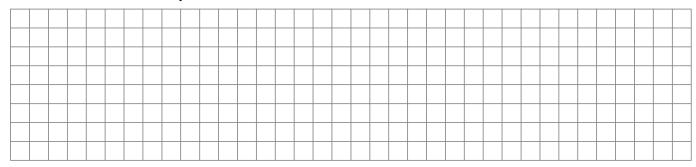


Task 2	2																																
Flying at <i>P</i> , a	a different remote area of Australia the Royal lying Doctor Service has an aircraft base located at <i>P</i> , another aircraft base located at <i>Q</i> and nother base located at <i>S</i> .															32				-81						_	3		e				
centre	All em ergency calls a re received a t a central call centre and are then transferred to the closest dircraft base.																P	•				- 30				- 3	Ç	<u> </u>	3	3	e e		
	This map of t he ar ea sho ws t he position of t he three aircraft bases.																2.8				2							3	- 0	i			
You not that an neares	ny	e n	ner	ger	ιсу	'i s																	- 20				- 2				- 3		
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rne sc	The scale on the map is														8			<u> </u>			30							3	- 3		_		
"grid square side = 20 km".													L												_								
(i)) What three lines have you drawn?																																
(ii)	(ii) Have these three lines intersected at a common poi															int	?																
(iii)	i) What do you notice about the distances from the point															t o	f ir	iter	se	ctio	n t	:0 €	eac	h a	irc	raf	t ba	ase	•				
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																										—							
(iv)	Wł	nat (doe	es t	he	ab	ove	e re	esu	lt i	nd	ica	te 1	to	yoı	ı?																	
(v)	Wł	nat i	is t	he	ар	pro	oxir	nat	te a	are	a c	of e	acł	re	egio	on?																	
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(vi)		e nı eral																														ase	÷.

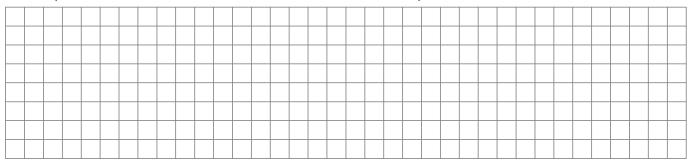
P:

Q:

(vii) The ar ea has r ecently r eceived g overnment funding to set up one specialist e mergency neurological team which must service all three aircraft bases. Assuming the number of emergency calls is consistent for all of the area, where is the best location to place this team. Give a reason for your choice?



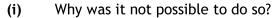
(viii) Would the location you selected above always be the best location regardless of the relative positions of the three aircraft bases? Give a reason for your choice.



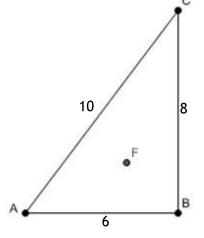
Three roads, as shown, join three villages A, B and C

A m obile pho ne m ast i s t o be e rected i n t he ar ea be tween t he villages.

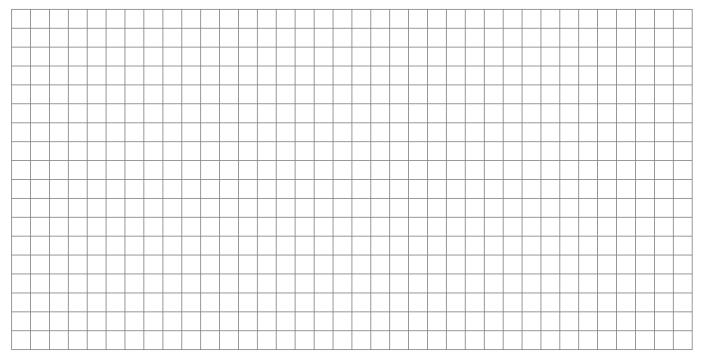
It was suggested that it would be fair to erect it at a point equidistant from the three villages.







(ii) It was then decided to erect the mast at *F*, which is equidistant from the three roads. How far is *F* from each road?

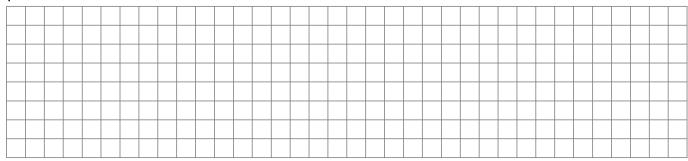


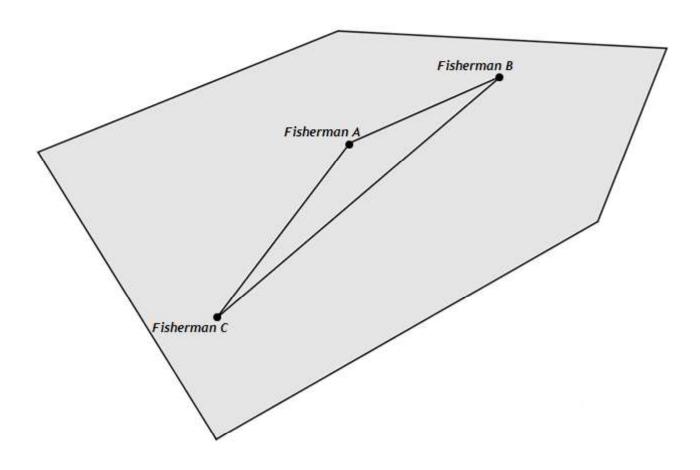
Which village is now nearest (as the crow flies) to the mast?



A f ishing c ommunity h as applied to the C ounty C ouncil f or pl anning pe rmission to extend their memorial to those lost at sea. The memorial is located in the park close to the pier (see diagram) and consists of bronze statues of three fishermen. To complete the memorial the community wishes to locate a bronze sculpture of a damaged fishing boat at a point which is the same distance away from the statues of each fisherman.

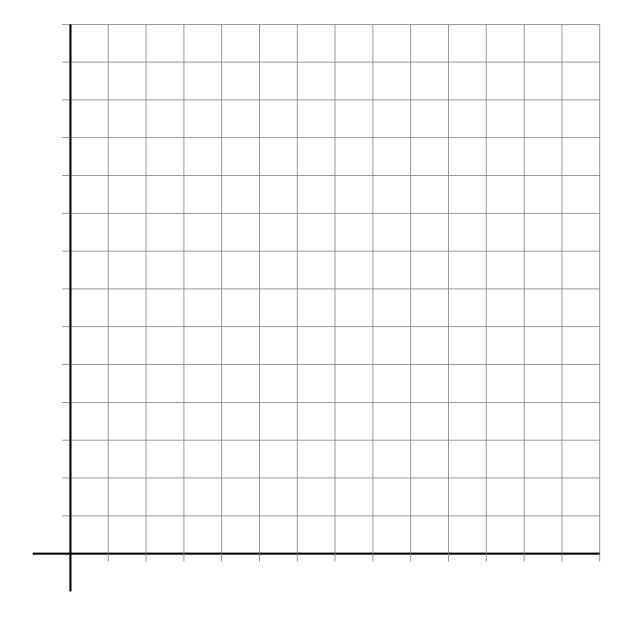
Suggest a geometric reason, using the diagram below, why the County Council might refuse planning permission.



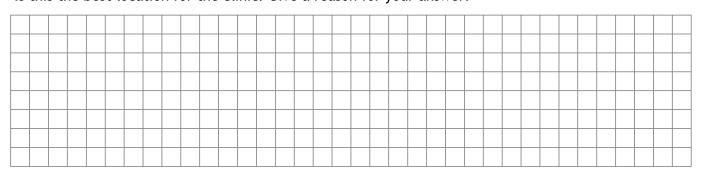


In an underdeveloped region an I rish aid organisation intends to build a medical clinic to service three villages located at grid coordinates (0,4), (5,1) and (1,1). Each village is connected to the other by a straight road.

What should the grid coordinates for the clinic be in order to locate it equidistant from all three villages?



Is this the best location for the clinic? Give a reason for your answer.



In a public park the gardener measures the distances between the only three trees using a measuring tape. The distances are 31.83 m, 25.75 m, and 29.27 m. He wishes to fence off a circular play area in which to place swings and have the three trees as part of the perimeter of that play area.

What area of the park will he be fencing off?

