

## National 4 Value Added Assessment – Revision Booklet

### Non-Calculator

- Complete these calculations:
  - $21.4 + 2.86 - 3.7$
  - $42.8 + 16.37 - 1.99$
  - $15.28 \times 9$
  - $1.635 \times 7$
  - $2.352 \div 3$
  - $195.24 \div 6$
- A delivery charge of 20% is required to post a package from America. If the item costs £400, how much will the delivery charge be?
- A waitress gets tips worth 30% of her salary. This week she earned £250. How much money did she make in tips?
- Tracey loses 40% of her money in a computer scam. If she started off with £800 in the account, how much money did she lose? How much did she have left?
- A cake weighed 750 grams. If  $\frac{3}{5}$  of it is still left, what does the remaining cake weigh?
- A school had 1240 pupils. One Friday only  $\frac{3}{4}$  of them were present. How many pupils were present that day?
- $\frac{5}{8}$  of a chocolate bar is fat. How many grams of fat are there in a chocolate bar which weighs 320 grams?
- A summer vest costs £6.75. How much will it cost to buy 6 of these vests?
- A hamburger costs £2.29. How much would it cost to buy a team of 7 netball players one hamburger each?
- A tin of paint costs £12.97. To decorate a room, 4 of the tins are required. How much will this cost?
- A car is 1.84 m in height. It has a roof box on it with a depth of 0.45 metres. How much clearance will it have on a ferry whose maximum height is 2.8 metres?
- There is a weight limit of 24.5 kg for luggage on a plane to avoid extra charges. Gavin has two items of luggage weighing 8.62 kg and 12.13kg. How much weight could he still add to his luggage on holiday and not have to pay extra?
- A baker mixes 3.28kg of flour with 1.5kg of water to make his bread. If he uses 2.56 kg of the mixture, how much will he have left?

14. Calculate the mean of each set of data below – give each answer correct to 2 decimal places:

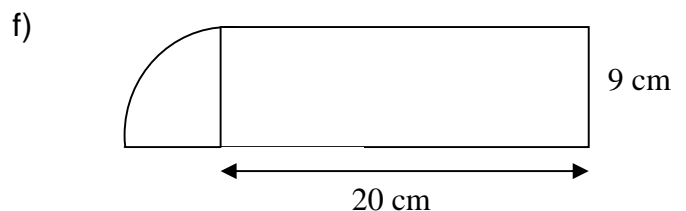
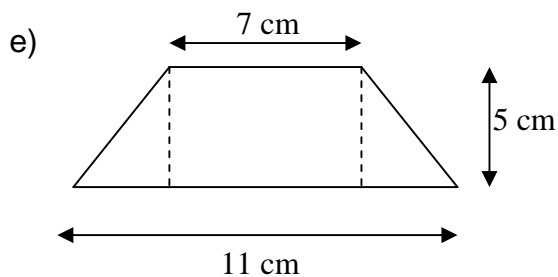
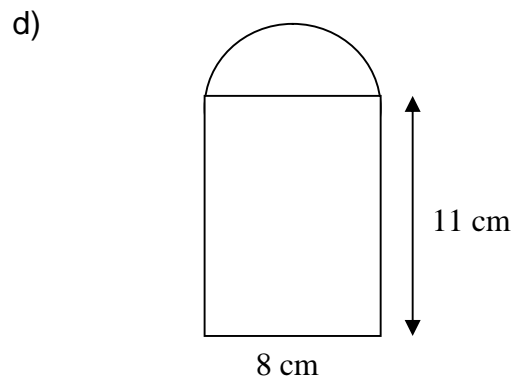
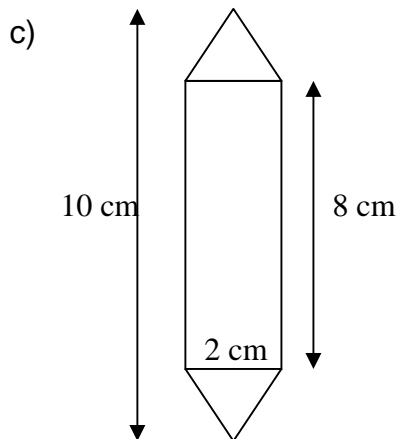
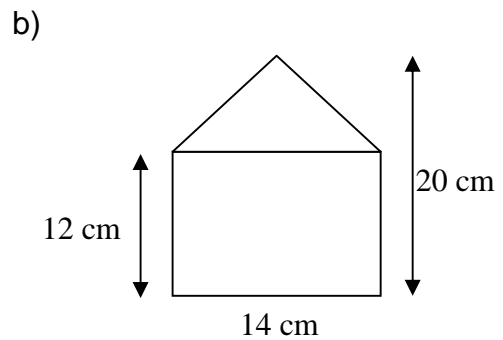
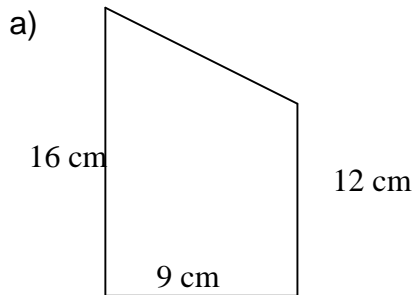
- a) Six items weighing in kg:      5      8      4      7      6      5
- b) 7 pupils' pocket money :      5      7      8      10      11      4      3
- c) 8 test scores:      2      12      6      15      10      8      16      4
- d) 9 lengths in cm:      12      15      8      5      6      20      3      4      5

**Calculator**

1. Solve each equation below:

- a)  $5x - 3 = 2x + 15$                       b)  $9x - 7 = 4x + 23$                       c)  $12x + 9 = 7x + 34$
- d)  $8x + 12 = 6x + 29$                       e)  $4x - 3 = 3 - 2x$                       f)  $10x - 7 = 3x + 56$
- g)  $15x + 8 = 7x + 40$                       h)  $2x - 9 = 18 - x$                       i)  $16x - 15 = 10x + 21$
- k)  $5(x + 3) = 2x + 36$                       l)  $2(3x - 1) = 4x + 12$                       m)  $3(5x + 2) = 8x + 34$

2. Find the area of each:



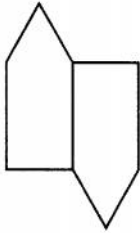
3. Sandra is working on the design for a bracelet.

She is using matches to make each shape.

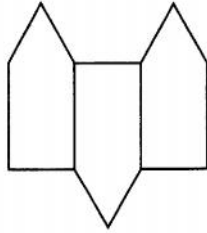
Shape 1



Shape 2



Shape 3



Shape 4

(a) Draw shape 4.

(b) Complete the following table.

Shape number ( $s$ )	1	2	3	4	5	6		13
Number of matches ( $m$ )	5	9			21			

(c) Find a formula for calculating the number of matches, ( $m$ ), when you know the shape number, ( $s$ ).

d) Find out how many matches would be needed to make shape number 60.

4. Mhairi makes necklaces in M-shapes using silver bars.



a) Copy and complete the table below.

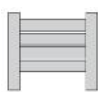
Number of M-shapes( $m$ )	1	2	3	4		15
Number of bars ( $b$ )	4	7				

b) Write down a formula for calculating the number of bars ( $b$ ) when you know the number of M-shapes ( $m$ ).

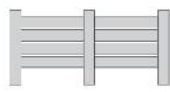
c) How many bars does she need to make with 40 M Shapes?

5. A children's play area is to be fenced.

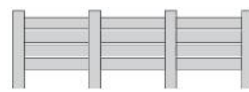
The fence is made in sections using lengths of wood, as shown below.



1 section



2 sections



3 sections

5. (continued)

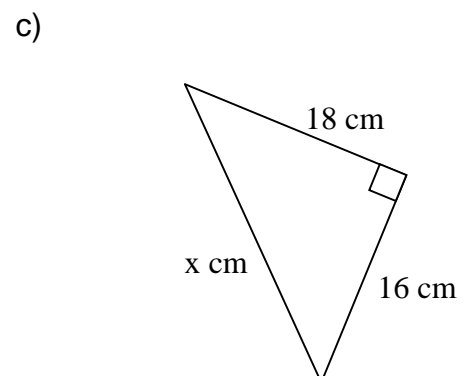
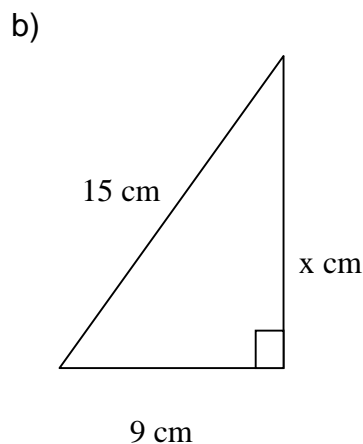
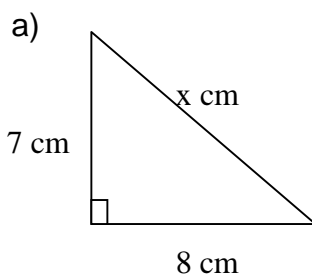
(a) Complete the table below:

Number of sections ( $s$ )	1	2	3	4	5		12
Number of lengths of wood ( $w$ )	6	11					

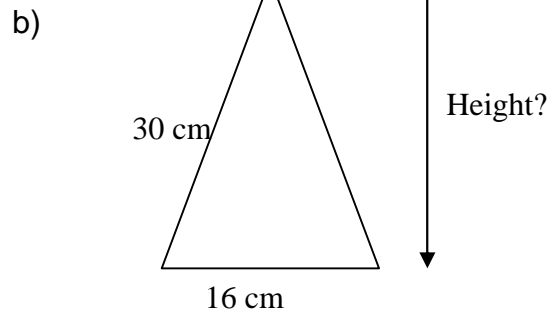
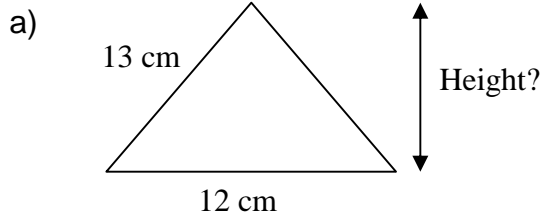
(b) Write down a formula for calculating the number of lengths of wood ( $w$ ), when you know the number of sections ( $s$ ).

(c) How many lengths of wood are needed to create a fence with 30 sections?

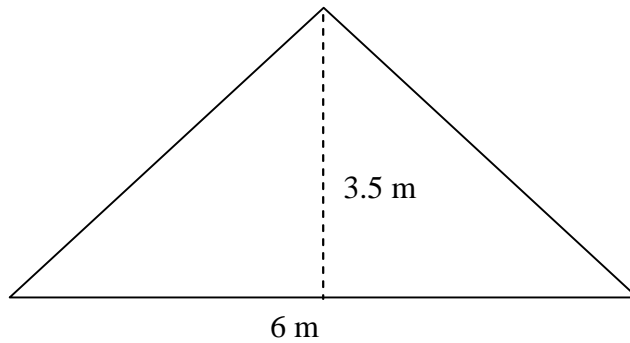
- Dave travelled 94 miles in a time of 2 hours and 12 mins. Calculate his average speed for the journey. (answer in mph)
- Trevor drove his van for 4 hours and 36 minutes. He covered a distance of 230 miles. Calculate his average speed for the journey. (answer in mph)
- Gary took 5 hours 18 minutes to complete a hillwalk which covered a distance of 26.5 miles. What was his average speed?
- Jane drove for 3 hours and 24 minutes at an average speed of 40 mph. How far did she travel?
- It took John 6 hours and 48 minutes to get to Glasgow, travelling at an average speed of 60 mph. How far away was he when he started?
- Kerry's car managed an average speed of 120 kmph on the motorway in France. If she travelled at this pace for 2 hours and 12 minutes, how far did she get?
- How long would it take to travel 160 miles at an average speed of 50mph. Give your answer in hours and minutes.
- Harry travelled 408 miles averaging a speed of 60mph. How long did this take him? Give your answer in hours and minutes.
- A journey of 1728 miles was flown at an average speed of 320 mph. How long was the journey? Give your answer in hours and minutes.
- Find the missing lengths on the triangles below:



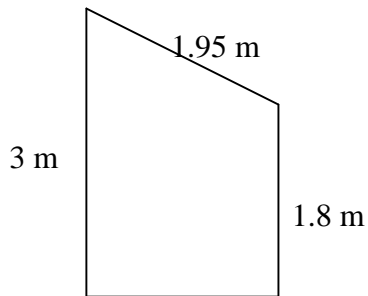
16. Find the heights of these isosceles triangles:



17. A patch of lawn was laid out as an isosceles triangle as shown below. It was to be edged with wood. Calculate the length of wood required to do this (to 1 decimal place).

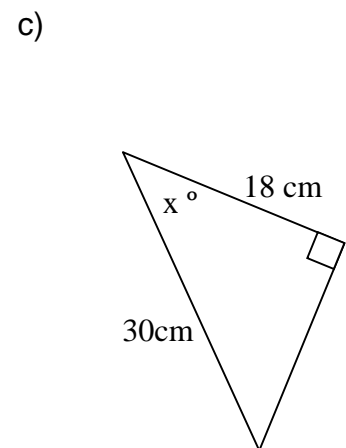
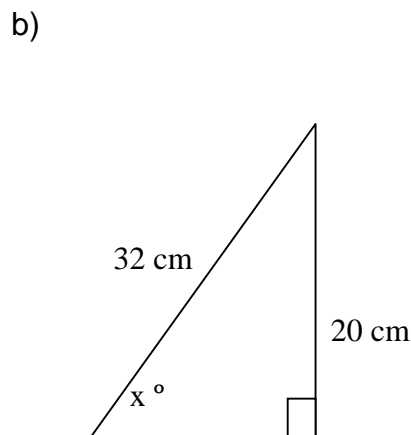
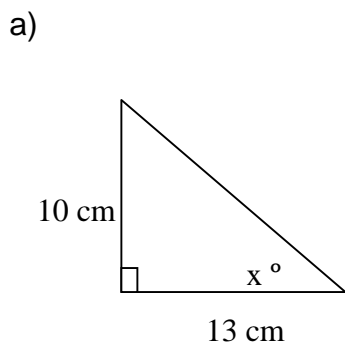


18. A garden shed is planned as follows:

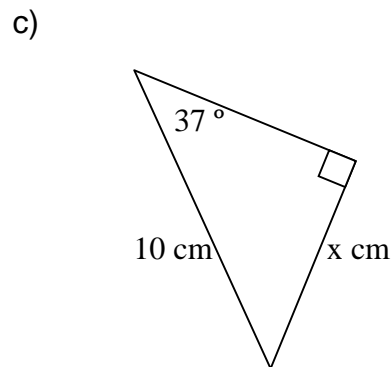
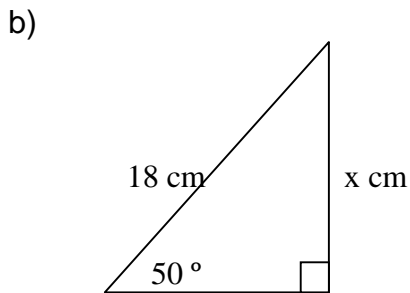
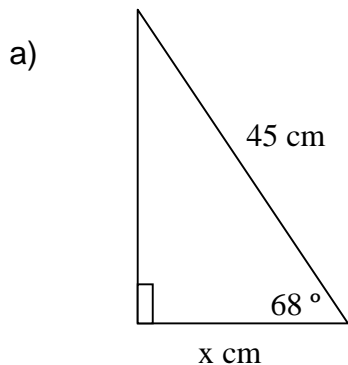


Find the width of the garden shed.

19. Find the missing angle in each triangle below:



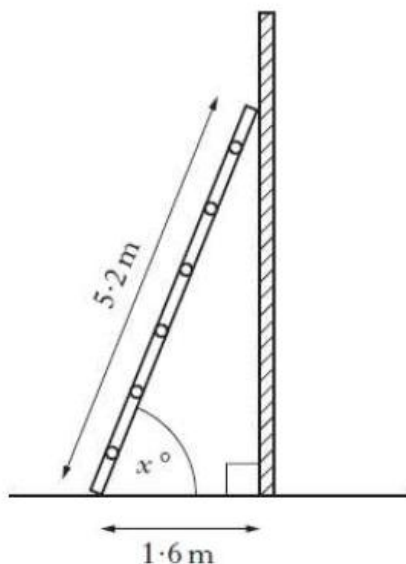
20. Find the missing sides in the triangles below:



21. A ladder which is 5.2 metres long is placed against a wall. The foot of the ladder is 1.6 metres from the wall. The size of the angle between the ladder and the ground is  $x^\circ$ .

a) Calculate  $x^\circ$

**Do not use a scale drawing.**

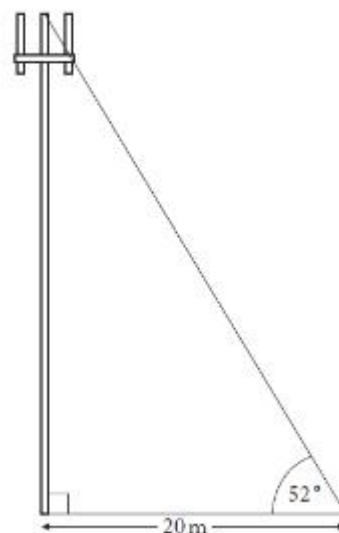


b) The ladder is deemed to be safe if the angle between it and the ground is less than  $60^\circ$ . Is the ladder safe – use your calculation to justify your answer.

22. A surveyor has to calculate the height of a mobile phone mast. From a point 20 metres from the base of the mast, the angle of elevation to the top is  $52^\circ$ .

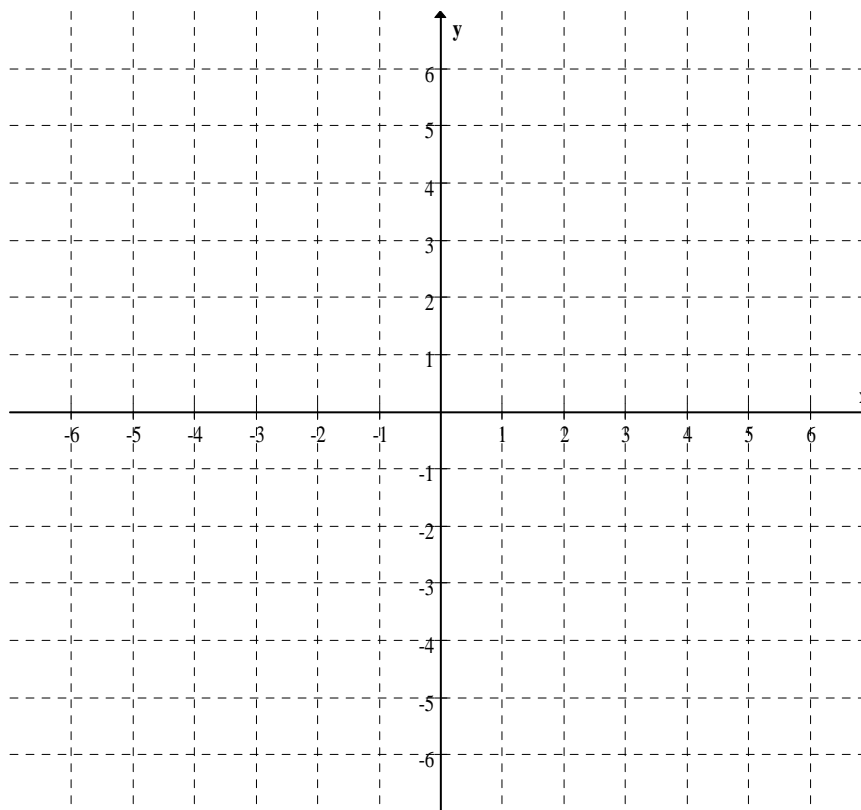
Calculate the height of the mobile phone mast.

Round your answer to 1 decimal place.

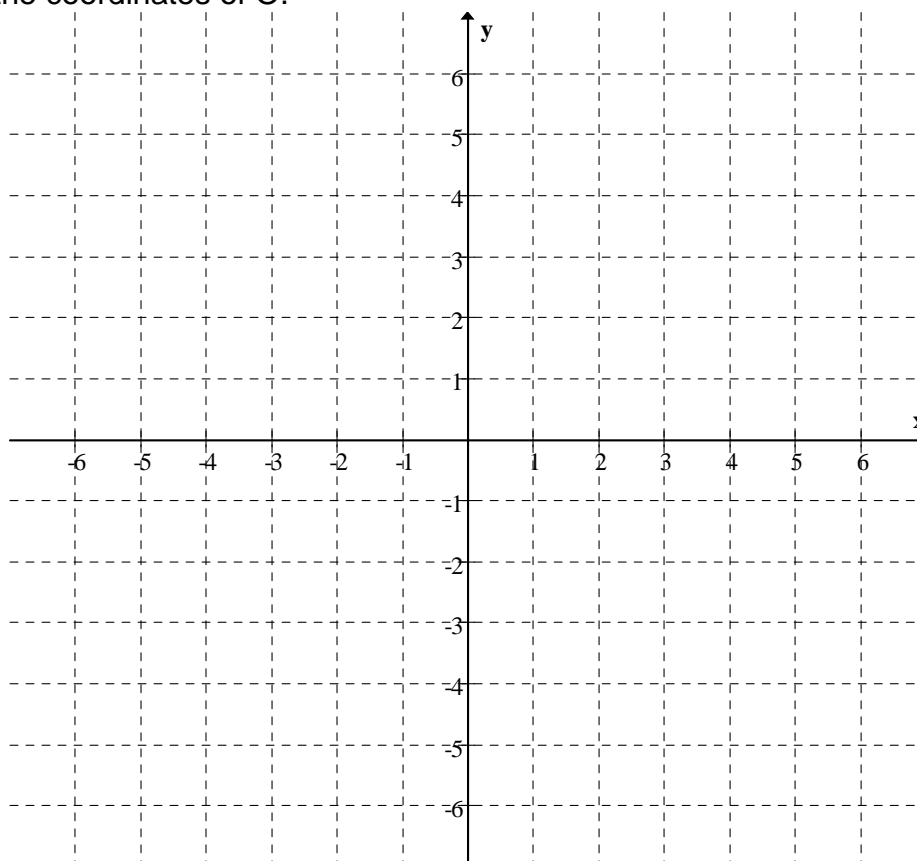


## Coordinates Revision Sheet

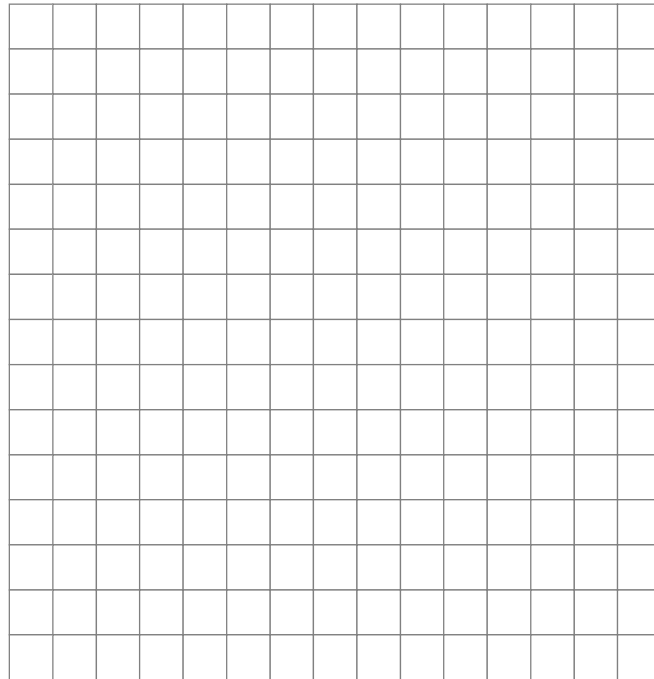
- Plot the points  $A(-2, 1)$   $B(0, 3)$  and  $C(4, 3)$  on the graph below.
  - Now plot a fourth point  $D$  to create a parallelogram. Draw the parallelogram.
  - State the coordinates of  $D$ .



- Repeat for the points  $P(-4, -5)$   $Q(1, -3)$  and  $R(2, 0)$  on the graph above.
- Plot the points  $L(-5, 4)$   $M(0, 1)$  and  $N(3, -4)$  on the graph below.
  - Now plot a fourth point  $O$  to create a rhombus. Draw the Rhombus.
  - State the coordinates of  $O$ .



4. a) Draw a set of axes and plot the points  $A(-3, 6)$   $B(4, 7)$  and  $C(1, -2)$  on the graph below.  
b) Now plot a fourth point  $D$  to create a parallelogram. Draw the parallelogram.  
c) State the coordinates of  $D$ .



5. a) Draw a set of axes and plot the points  $P(-2, -4)$   $Q(-1, 3)$  and  $R(6, 4)$  on the graph below.  
b) Now plot a fourth point  $S$  to create a rhombus. Draw the rhombus.  
c) State the coordinates of  $S$ .

