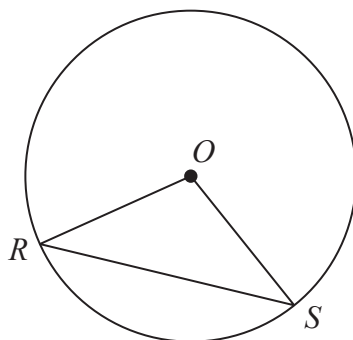


9  $R$  and  $S$  are points on a circle with centre  $O$ .



(a) On the diagram above, shade a segment of the circle.

(1)

(b) Write down the mathematical name of the straight line  $RS$ .

.....  
(1)

In the diagram below,  $P$  and  $Q$  are points on a circle with centre  $O$ .

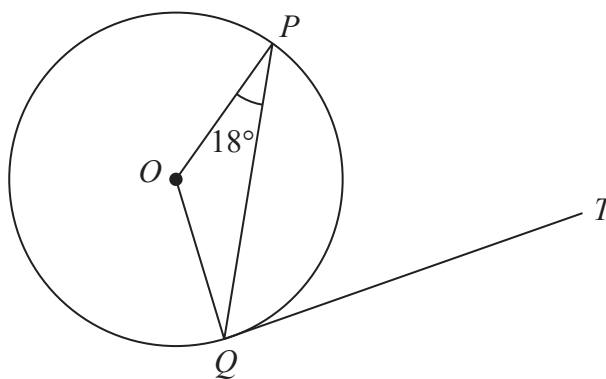


Diagram **NOT** accurately drawn

$QT$  is a tangent to the circle.  
Angle  $OPQ = 18^\circ$

(c) Work out the size of angle  $PQT$ .  
Give a reason for each stage of your working.

.....  
(3)

(Total for Question 9 is 5 marks)



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

10 Last Thursday, 135 students each bought one item of fruit.  
 The table shows information about the 135 items of fruit they bought.

<b>Fruit</b>	apple	pear	orange	banana	peach
<b>Number of students</b>	36	15	27	33	24

One of the 135 students is chosen at random.

(a) Find the probability that this student bought an apple or a banana.

.....  
 (2)

A pie chart is drawn for the information in the table.

(b) Work out the size of the angle in the pie chart for oranges.

.....  
 (2)

**(Total for Question 10 is 4 marks)**

11 (a) Work out the value of  $\frac{10.4}{5.1 - 2.7} + \frac{6.8 - 3.2}{9.5}$

Give your answer as a decimal.

Write down all the figures on your calculator display.

.....  
 (2)

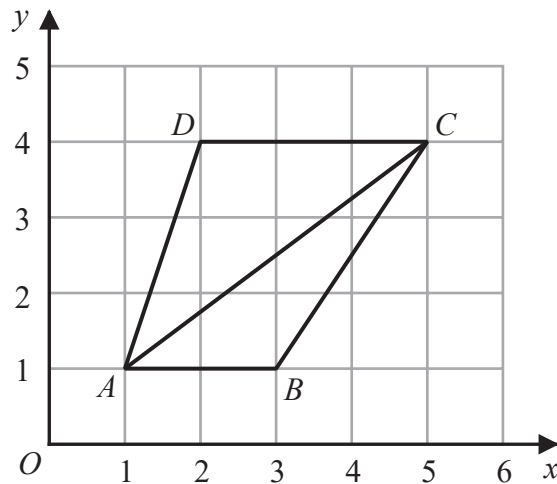
(b) Give your answer to part (a) correct to 3 significant figures.

.....  
 (1)

**(Total for Question 11 is 3 marks)**



12 The diagram shows a quadrilateral  $ABCD$  on a centimetre grid.



- (a) Work out the area of triangle  $ABC$ .  
You must include the units with your answer.

.....  
(3)

- (b) Give a reason why angle  $ACD$  is equal to angle  $CAB$ .

.....  
(1)

- (c) Write down an equation for the straight line that passes through  $D$  and  $C$ .

.....  
(1)

(Total for Question 12 is 5 marks)



13 Tenzin walks in the mountains.

She has a rule to estimate the temperature at different heights on a mountain.

Temperature decreases by  $2^{\circ}\text{C}$  for every increase of 300 metres in height.

The temperature at a height of 800 metres on a mountain is  $6^{\circ}\text{C}$ .

- (a) Use Tenzin's rule to work out an estimate of the temperature at a height of 2000 metres on the mountain.

.....  $^{\circ}\text{C}$   
(3)

Tenzin also has a rule to estimate the time it will take her to complete a walk in the mountains.

She uses

an average speed of 5 km/h for the distance she will walk

and then

adds on 1 minute for every increase of 10 metres in height.

Tenzin plans to walk 12 km in the mountains with an increase of 800 metres in height.

- (b) Use Tenzin's rule to work out an estimate for the time it will take her to complete this walk.

Give your answer in hours and minutes.

..... hours ..... minutes  
(3)

(Total for Question 13 is 6 marks)



14 Javier has two sets of cards.

Each set contains 4 cards, one marked **A**, one marked **B**, one marked **C** and one marked **D**.

Javier is going to take at random one card from each set.

The table shows all possible pairs of cards that Javier could take.

		Set 2			
		A	B	C	D
Set 1	A	AA	AB	AC	AD
	B	BA	BB	BC	BD
	C	CA	CB	CC	CD
	D	DA	DB	DC	DD

(a) Find the probability that Javier will take at least one card marked **C**.

.....  
(2)

Javier is going to take at random one card from each set, note the letter on each card and replace the cards.

He is going to do this a total of 80 times.

(b) Work out an estimate for the number of times that Javier will take at least one card marked **C**.

.....  
(2)

(Total for Question 14 is 4 marks)



15

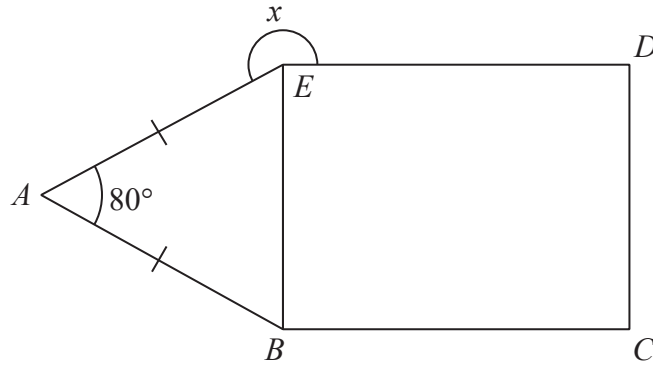


Diagram NOT  
accurately drawn

*BCDE* is a rectangle.

*ABE* is an isosceles triangle.

$$AB = AE$$

$$\text{Angle } BAE = 80^\circ$$

Work out the size of angle  $x$ .

(Total for Question 15 is 3 marks)



P 5 4 6 9 3 A 0 1 5 2 4

- 16 Work out the difference between the largest share and the smallest share when 3450 yen is divided in the ratios 2:6:7

..... yen

(Total for Question 16 is 3 marks)

- 17 Gopal is paid 20 000 rupees each month.  
Jamuna is paid 19 200 rupees each month.

Gopal and Jamuna are both given an increase in their monthly pay.  
After the increase, they are both paid the same amount each month.

Gopal was given an increase of 8%

Work out the percentage increase that Jamuna was given.

.....%

(Total for Question 17 is 4 marks)

