Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

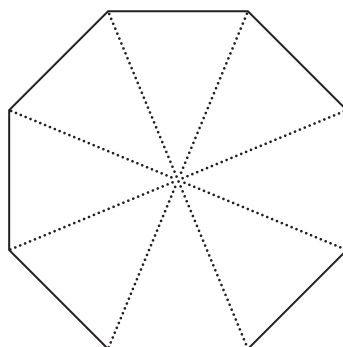**1** Here are five fractions.

$\dfrac{2}{8}$	$\dfrac{3}{9}$	$\dfrac{5}{25}$	$\dfrac{7}{28}$	$\dfrac{8}{40}$

Two of the fractions in the table are equivalent to $\dfrac{1}{5}$

(a) Put a tick (✓) in the box underneath each of these two fractions.

(2)

The diagram shows an 8-sided polygon and its diagonals.

(b) Write down the mathematical name of an 8-sided polygon.

....

(1)

(c) Shade $\dfrac{3}{4}$ of the polygon shown in the diagram above.

(1)

The area of a polygon is $56\,\text{cm}^2$

(d) Find $\dfrac{3}{4}$ of 56

....

(2)

(Total for Question 1 is 6 marks)

2 The table shows the average number of spectators per match, for each of six Spanish football teams, in one season.

Team	Average number of spectators per match
Real Betis	46 393
Valencia	38 699
Barcelona	65 731
Athletic Bilbao	37 378
Sevilla	33 069
Real Madrid	65 027

(a) Which team had the lowest average number of spectators per match?

....

(1)

(b) Write the number 65 731 correct to the nearest thousand.

....

(1)

(c) Write down the value of the 6 in the number 38 699

....

(1)

In one match, Sevilla played Valencia.
In the match, Sevilla had 8 shots on target and Valencia had 12 shots on target.

(d) Write the ratio 8:12 in its simplest form.

....

(1)

In the same match, Valencia had 72% possession of the ball.

(e) Write 72% as a fraction in its simplest form.

....

(2)

(Total for Question 2 is 6 marks)

3 The bar chart shows information about the numbers of text messages that Susan and Philip sent from their mobile phones on each of six days one week.
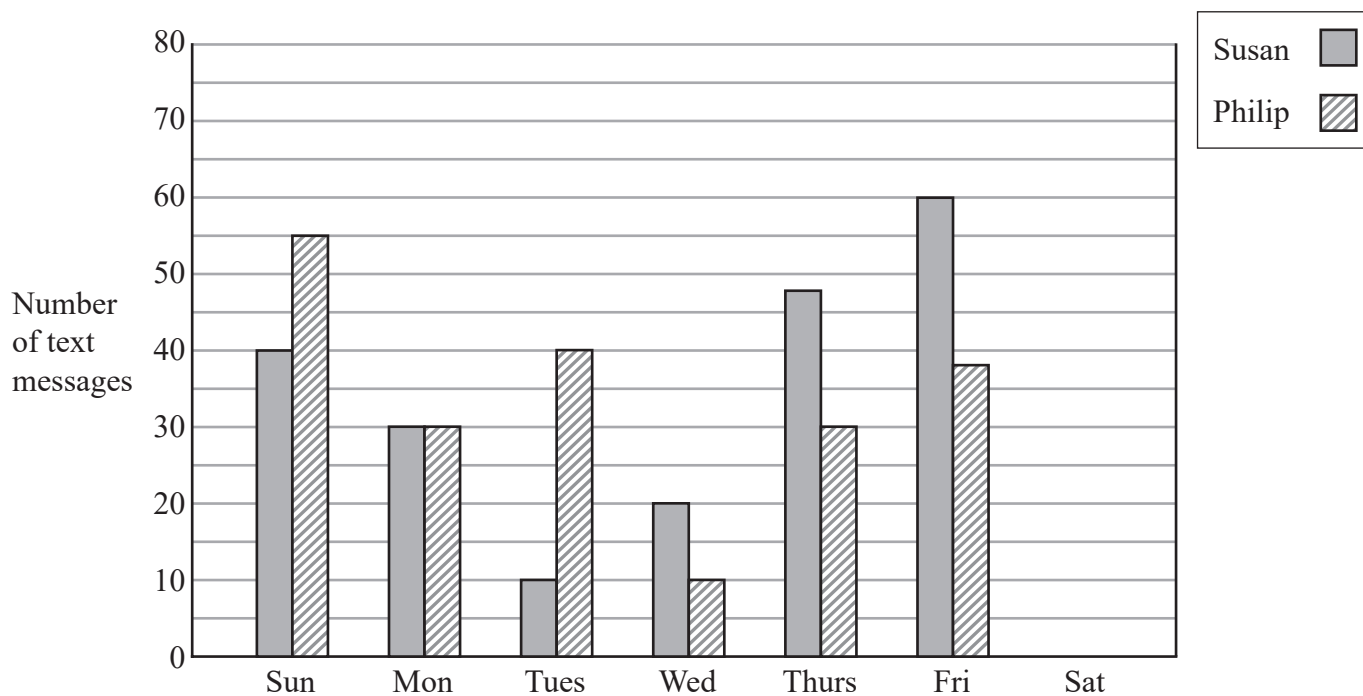
(a) On which day did Susan send twice as many text messages as Philip?

....

(1)

(b) How many text messages did Philip send on Sunday?

....

(1)

On Saturday, Susan sent 15 text messages and Philip sent 40 text messages.

(c) Show this information on the bar chart.

(1)

In the following week, Philip sent a total of 180 text messages.
Of these text messages, 25% were sent to Susan.

(d) Work out 25% of 180

....

(2)

(Total for Question 3 is 5 marks)

4 The table shows the temperatures recorded at midnight and at midday for each of five North American cities on a Monday one week.

City	Midnight temperature (°C)	Midday temperature (°C)
Boston	− 2	14
Houston	11	20
Chicago	− 8	7
Detroit	− 7	− 1
New York	0	12

(a) Which city had the lowest midnight temperature?

....

(1)

(b) Find the difference between the midnight temperature and midday temperature for Boston.

....°C

(1)

From Monday to Thursday, the midday temperature in Detroit increased by 2°C each day.

(c) Work out the midday temperature in Detroit on Thursday.

....°C

(2)

(Total for Question 4 is 4 marks)

5 James is on holiday in Canada.
The exchange rate is £1 = 1.75 Canadian dollars.

(a) Change £800 into Canadian dollars.

....Canadian dollars

(2)

James buys a watch in Canada.

The price of the watch is 98 Canadian dollars.
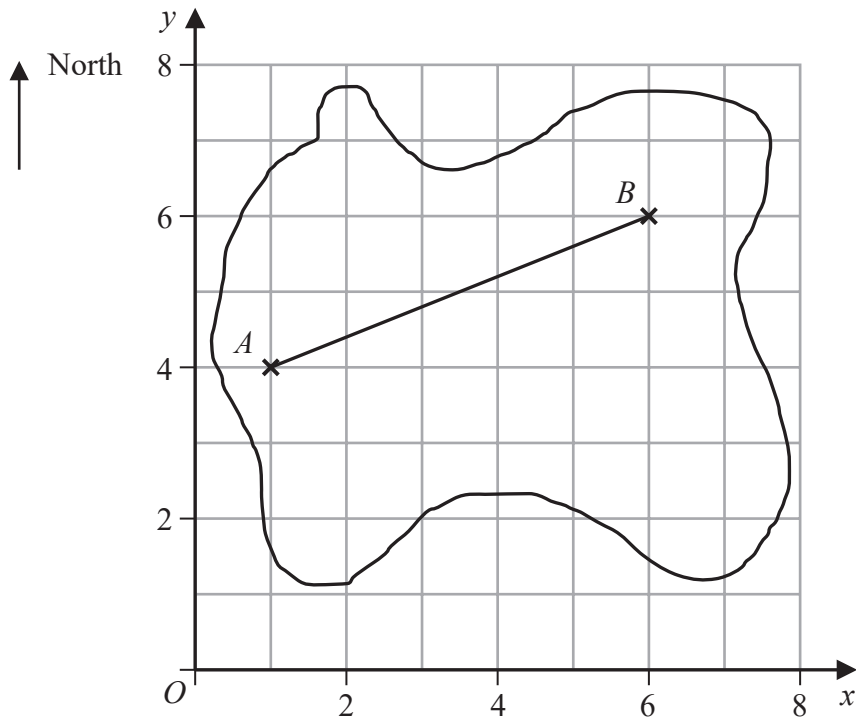In England the price of an identical watch is £60

(b) Work out the difference in the prices of the two watches.
Give your answer in pounds (£)

£..

(2)

(Total for Question 5 is 4 marks)

6 The accurate scale diagram shows the map of an island drawn on a centimetre grid.

The position of Aaron's house is A.
The position of Bharat's house is B.

(a) Write down the coordinates of A.

(......................... , ...)
(1)

(b) By measurement, find the bearing of A from B.

.... °
(2)

(c) Measure the length of the line AB.
Give your answer in centimetres correct to one decimal place.

.... cm
(1)

Aaron cycled along a straight path from his house to Bharat's house.
The scale of the map is 1 cm represents 5 km.

(d) Work out the distance, in kilometres, that Aaron cycled.

....km

(1)

Aaron left his house at 10 45 am and arrived at Bharat's house at 1 05 pm.

(e) How long did Aaron's cycle ride take him?
Give your answer in hours and minutes.

.... hours .... minutes

(2)

(Total for Question 6 is 7 marks)

7 (a) Solve $5x = 20$

$x =$ ....

(1)

(b) Simplify $3a \times 8b$

....

(1)

(c) Simplify $8w - 4y + w - 3y$

....

(2)

(d) Factorise fully $16 + 12t$

....

(2)

(Total for Question 7 is 6 marks)