



**KEY SKILLS**  
**Application of Number Level 2**  
**External Assessment**

**EXEMPLAR 1**

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**WHAT YOU NEED FOR THIS TEST**

- This Question Paper
  - An Answer Sheet
  - Instructions on how to complete the Answer Sheet
  - A Pen with black or blue ink
  - A Ruler marked with mm and cm
  
  - **Calculators may NOT be used**
  - **Bilingual dictionaries may be used**
- 

**TIME ALLOWED - 1 HOUR 15 MINUTES**

**THERE ARE 40 QUESTIONS IN THIS TEST**  
**(Total Marks: 40)**

**You should try to answer all of the questions**

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**INSTRUCTIONS TO CANDIDATES**

- Ensure your personal details are correctly entered in the spaces provided on the Answer Sheet
  - Read each question carefully
  - Try to answer all of the questions
  - Follow the instructions on how to complete the Answer Sheet
  - At the end of the test, hand this Question Paper, the Answer Sheet and all notes to the supervisor
  
  - **DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO BY THE SUPERVISOR**
-

Use the information below for questions 1, 2 and 3.

A Fire Service report shows the numbers of different types of fires attended during the year.

chimney fires	420
vehicle fires	770
derelict buildings	44
occupied buildings	960
others	330

- 1 The Fire Service wants to present the number of each type of fire as a fraction of all fires.

Which of these is the most effective way of presenting this information?

- A bar chart
- B scattergraph
- C line graph
- D pie chart

- 2 What fraction of all the fires were vehicle fires?

- A about  $\frac{1}{5}$
- B about  $\frac{1}{4}$
- C about  $\frac{1}{3}$
- D about  $\frac{1}{2}$

- 3 What is the ratio of chimney fires to fires in occupied buildings, expressed in the simplest terms?

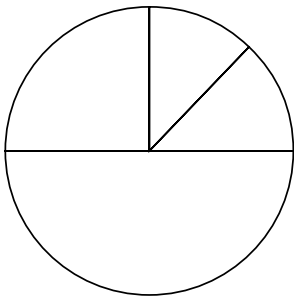
- A 42 : 96
- B 7 : 16
- C 6 : 13
- D 3 : 8

- 4 Toby carried out a 'transport to college' survey for GNVQ students at his college. The table shows the survey results.

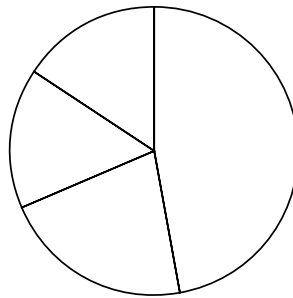
Transport to college	No. of people
Walk	18
Bike	19
Car	74
Bus	37

Which of these pie charts matches the results most closely?

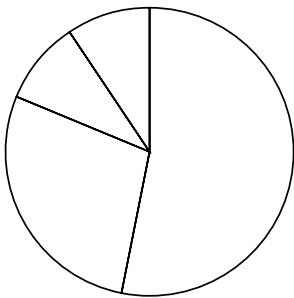
A



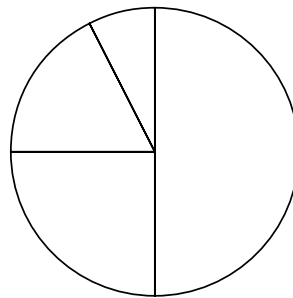
B



C



D



Use the information below for questions 5 and 6.

This is the label on a packet of weedkiller to treat a garden.

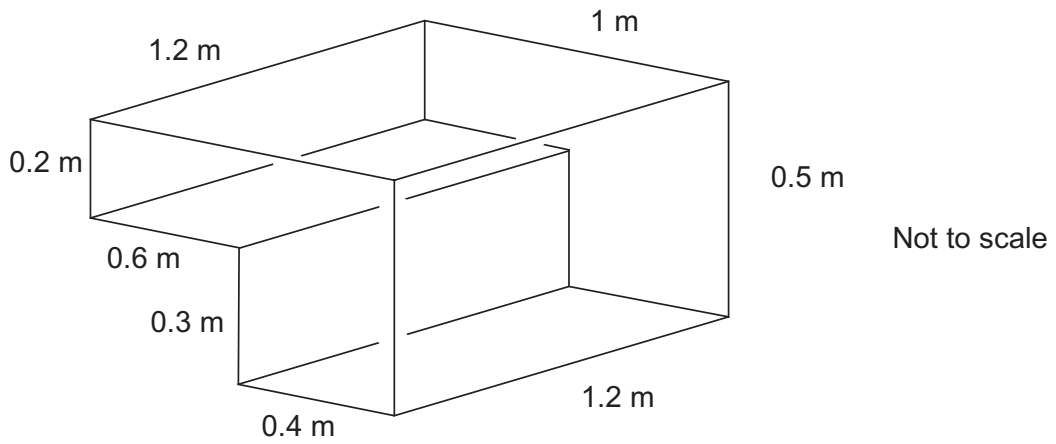
**WEEDKILLER**

Mix 60 grams of powder with 4.5 litres of water  
To treat 20 square metres of ground  
1 litre of water weighs 1000 g (1 kg)

- 5 What is the dilution of the weedkiller, expressed as a ratio of weight of weedkiller : weight of water?
- A 1 : 13
  - B 1 : 17
  - C 1 : 60
  - D 1 : 75
- 6 For best results, the diluted weedkiller mix should be spread evenly over the ground. Approximately how much diluted weedkiller is needed per square metre of ground?
- A 0.2 litres
  - B 3 litres
  - C 9 litres
  - D 225 litres

- 7 The sketch diagram shows a design for a garden pond. The pond has shallow and deep parts for different plants.

All the edges meet at right angles to each other. 1 litre equals  $1000 \text{ cm}^3$ .



How many litres of water will fill the pond to the top?

- A 144 litres
- B 384 litres
- C 456 litres
- D 540 litres

Use the information below for questions 8 and 9.

Rainsford District Council is finding out the extent of car ownership in the area, so that it can plan road development.

8 Which of these methods is best for collecting the information?

- A count the number of cars on all roads into town on a given day using an electronic counter
- B carry out a survey of each neighbourhood at night to count the cars parked
- C count the cars in town car parks each day for a week and calculate the average
- D take a questionnaire to every household and ask how many cars they have

9 In Victoria Street there are 30 households.

9 households have no car, 15 have one car, and 6 have two cars.

What is the mean number of cars per household on Victoria Street?

- A 0.7 cars
- B 0.9 cars
- C 1.0 cars
- D 1.29 cars

10 Mark is cooking a 3 kilogram joint of beef.

His cook book says that

$$\text{Cooking time in minutes} = \frac{105 \times \text{weight in kilograms}}{2} + 25$$

How long must he cook the beef for (to the nearest 10 minutes)?

- A 2 hours 30 minutes
- B 2 hours 50 minutes
- C 3 hours
- D 3 hours 10 minutes

Use the information below for questions 11 and 12.

The table shows the latest three-monthly summary of receipts and payments for 'SN Sports'.

**Cash flow in £000s**

	July	August	September	Total
<b>Receipts</b>				
Cash from sales	120.3	40.5	75.2	236.0
Other income	9.2	4.2	5.0	18.4
Totals	129.5	44.7	80.2	<b>254.4</b>
<b>Payments</b>				
Materials from suppliers	50.6	27.0	70.4	148.0
Wages and salaries	13.4	15.0	13.6	42.0
Overheads	23.0	11.0	12.0	51.0
Capital expenditure	5.0	8.0	2.0	15.0
Totals	92.0	66.0	98.0	<b>256.0</b>

11 Which of these methods are checks for the Total Receipts for the three months?

- method 1  $254.4 - 18.4 = 236.0$
- method 2  $92.0 + 66.0 + 98.0 = 256.0$
- method 3  $120.3 + 40.5 + 75.2 = 236.0$
- method 4  $254.4 - 129.5 - 44.7 = 80.2$

- A methods 1 and 2
- B methods 2 and 3
- C methods 3 and 4
- D methods 1 and 4

12 Under 'Payments', what level of accuracy has been used in the figures for 'Materials from suppliers'?

- A nearest 10p
- B nearest £
- C nearest £100
- D nearest £1000

13 Alison has a picture that she wants framing.

The cost is £5.99 plus an amount that depends on the length of framing needed.

The man in the shop says it will cost "£5.99, plus 1.9 times 8.99, that's £25.07 altogether".

Which of the following calculations could she use to check.

A  $(5 + 2) \times 8 =$

B  $(6 + 2) \times 9 =$

C  $5 + (2 \times 8) =$

D  $6 + (2 \times 9) =$

14 The mean temperature in a refrigerator was  $2.75^{\circ} \text{C}$ .

After adjustment, it dropped to  $-5.36^{\circ} \text{C}$ .

How much did the temperature drop?

A  $2.61^{\circ} \text{C}$

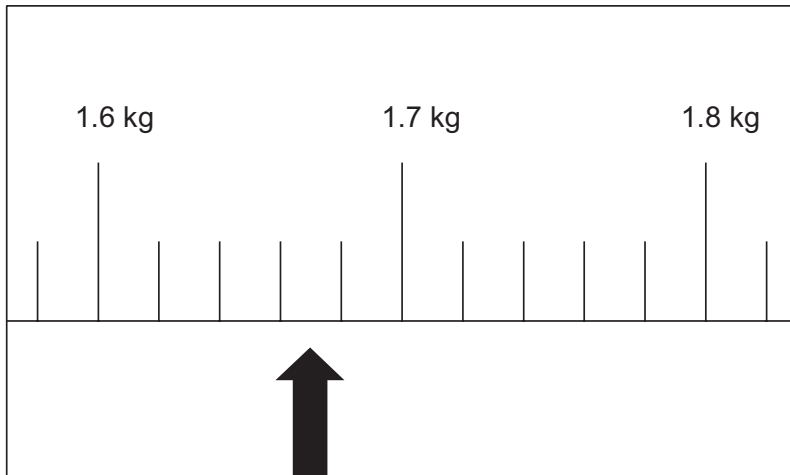
B  $3.41^{\circ} \text{C}$

C  $8.01^{\circ} \text{C}$

D  $8.11^{\circ} \text{C}$



- 15 Andy bags some fruit in a supermarket and weighs it in the bag.  
The picture shows the pointer on the weighing scales.



Andy knows the bag weighs about 4 grams.

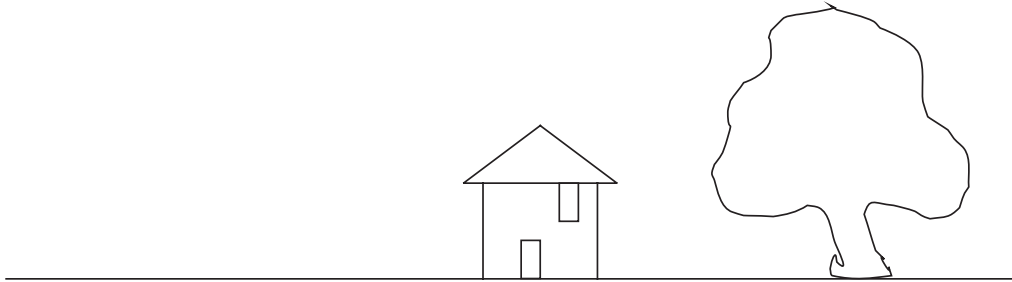
What is the best estimate for the weight of the fruit in his bag?

- A 1.631 kg
- B 1.661 kg
- C 1.666 kg
- D 1.681 kg

16 Mary is concerned about the growth of a large tree near her house.

She photographs the house and tree from a point some way away and an equal distance from them both.

The picture shows part of her photograph.



Her house is 9.1 metres high.

Estimate the height of the tree.

- A 15 m
- B 16 m
- C 20 m
- D 35 m

17 Jenny has a part-time job in a restaurant.

She gets paid £3.80 per hour.

On Sundays she is paid one and a half times as much per hour.

On Bank Holidays she is paid twice as much per hour.

She works 5 hours on Saturday, 3 hours on Sunday and 4 hours on Bank Holiday Monday.

How much does she earn altogether?

- A £46.60
- B £66.50
- C £68.40
- D £70.30

Use the information below for questions 18 and 19.

The table shows the current and new Council Tax rates for West Forest District Council.

West Forest District Council		
Band	Current Council Tax	New Council Tax
A	£520	£546
B	£619	£649
C	£707	£742
D	£796	£836
E	£973	£1021
F	£1150	£1207
G	£1327	£1393
H	£1580	£1659

18 For a house in Band A, the new rate represents an increase over the current rate of about

- A 1%
- B 5%
- C 26%
- D 95%

19 There are 2500 houses in Band H.

How much extra money will the new tax raise from these houses, compared with the current tax?

- A £194 500
- B £195 500
- C £196 500
- D £197 500

Use the information below for questions 20 and 21

Greg went on a cycle ride.

He cycled 30 miles in  $2\frac{1}{2}$  hours, then returned home more slowly.

20 He finds his average speed for the first 30 miles using this formula

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

What was Greg's average speed for the 30 miles?

- A 5 miles per hour
- B 12 miles per hour
- C 15 miles per hour
- D 33 miles per hour

21 His return journey took him 2 hours 45 minutes.

How long did his return journey take him, compared with his outward time?

- A 10% longer
- B 11% longer
- C  $\frac{1}{11}$  longer
- D 10 minutes longer

Use the information below for questions 22 and 23.

Margaret is checking that tennis balls manufactured by her company meet the UK specification.

**SPECIFICATION FOR TENNIS BALLS**

diameter:	2.500–2.625 inches
weight:	2.000–2.063 ounces
rebound height:	53–58 inches when dropped from a height of 100 inches

- 22 Margaret converts the measurements to metric units, so that she can also check against international standards. She uses the conversion

$$\text{number of millimetres} = \text{number of inches} \times 25.4$$

What is the minimum diameter of the ball in millimetres?

- A 62.07 mm
  - B 62.5 mm
  - C 62.9 mm
  - D 63.5 mm
- 23 Margaret checks the rebound height of 20 used tennis balls, with the following results:

53 55 54 56 52 52 54 62 53 57  
52 51 50 54 51 50 59 61 55 51

What is the mean rebound height of those tennis balls that meet the specification, (rounded to the nearest inch)?

- A 53 inches
- B 54 inches
- C 55 inches
- D 57 inches

Use the information below for questions 24 and 25.

The table gives the sales figures for a popular toy for last year.

Sales for 1999

Month	Sales ( £'000s )
January	1.4
February	1.6
March	1.7
April	1.6
May	1.8
June	1.7
July	2.1
August	2.6
September	1.8
October	2.4
November	5.6
December	7.5

- 24 In a sales report, the increase in monthly sales from June to December has to be quoted, as a percentage of June's sales.

Which calculation will give this increase?

A  $\frac{7.5}{7.5 - 1.7} \times 1.7$

B  $\frac{7.5 - 1.7}{7.5} \times 100$

C  $\frac{7.5 - 1.7}{1.7} \times 100$

D  $\frac{7.5 - 1.7}{100} \times 7.5$

- 25 The mean of the monthly sales for the 8 months January to August is £1810 (to the nearest £10).

How much more is the mean of the monthly sales for the 8 months March to October?

A £4200

B £530

C £150

D £120

26 The table shows the number of full-time and part-time employees working in a mini-market.

	Male	Female
Part-time	13	23
Full-time	10	14

The information has to be shown in a pie chart.

What is the size of the angle for the sector representing female full-time employees?

- A  $84^\circ$
- B  $138^\circ$
- C  $140^\circ$
- D  $222^\circ$

27 The table shows part of an income account for a club. Entries in brackets are negative.

		<b>Sub-total</b>	<b>Total</b>
subscriptions	£411.43		
donations	£29.50		
net activities	(£37.35)		
		£402.58	
bank interest	£16.23		
bank charges	(£17.66)		
		(£1.43)	
Overall total			£402.15

There is an error in one of the entries.

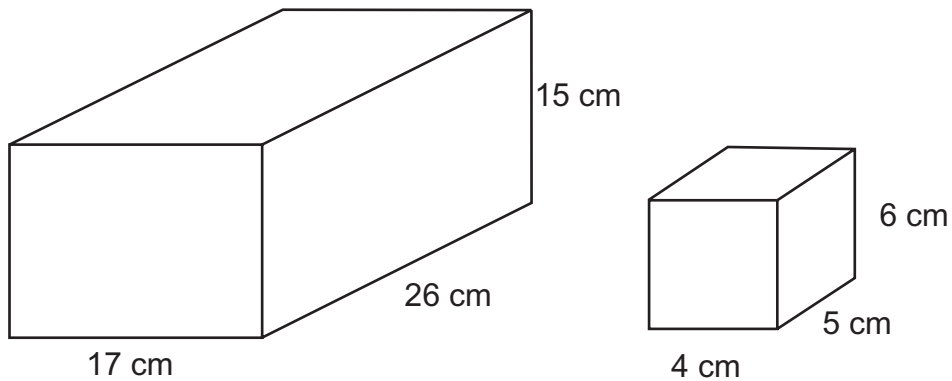
Which entry is wrong?

- A £402.58
- B £1.43
- C £402.15
- D you cannot say

28 Sue has to pack as many as possible small rectangular shaped boxes inside a large rectangular shaped box, as shown below.

The small boxes are 4 centimetres by 5 centimetres by 6 centimetres.

The large box is 17 centimetres by 26 centimetres by 15 centimetres.



**Not to scale**

The maximum number of small boxes she can fit inside the large box is

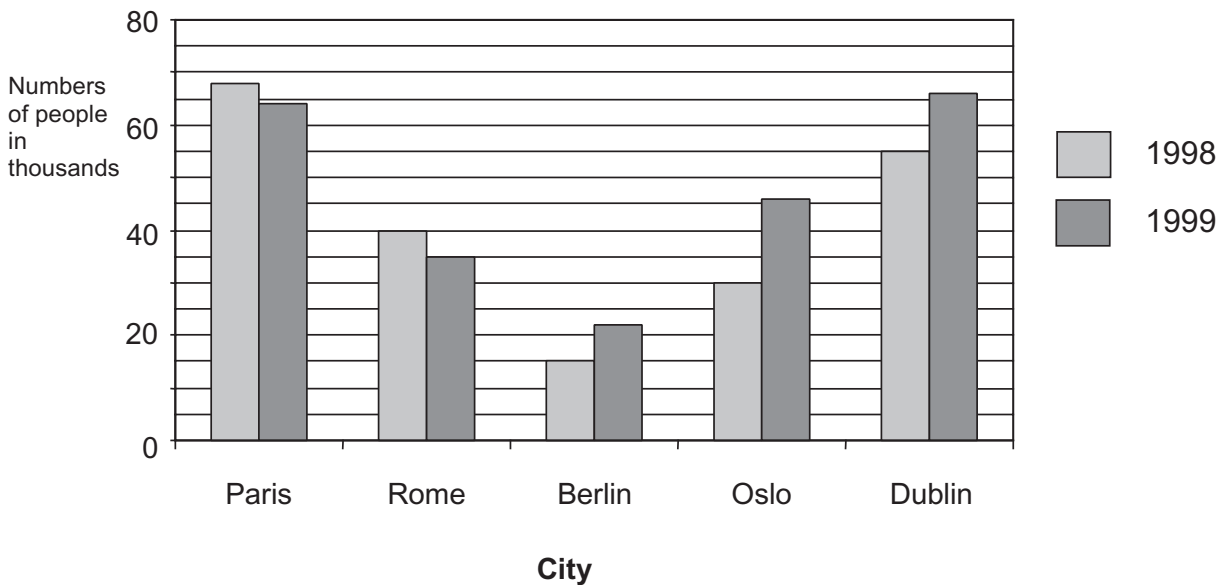
- A 36
- B 40
- C 48
- D 55



Use the information below for questions 29, 30, 31 and 32.

A travel company is comparing its results for 1998 with those for 1999. The bar chart shows the numbers of visitors to five major European cities in March of each year.

**Numbers of visitors to five major European cities in March**



29 Compare the numbers of visitors to all cities in March 1999 with the numbers in March 1998.

By how many has the total number of visitors to all cities increased, to the nearest thousand?

- A 11 000
- B 25 000
- C 41 000
- D 51 000

30 For some of the cities, the number of March visitors increased from 1998 to 1999. Of these, which city showed the smallest percentage increase in March visitors from 1998 to 1999?

- A Paris
- B Berlin
- C Oslo
- D Dublin

31 What proportion of the visitors to the five cities in 1999 went to Paris?

- A About 2 in 10
- B About 3 in 10
- C About 4 in 10
- D About 6 in 10

32 At one travel agent the exchange rate for buying back French francs is 10.90 francs for £1.

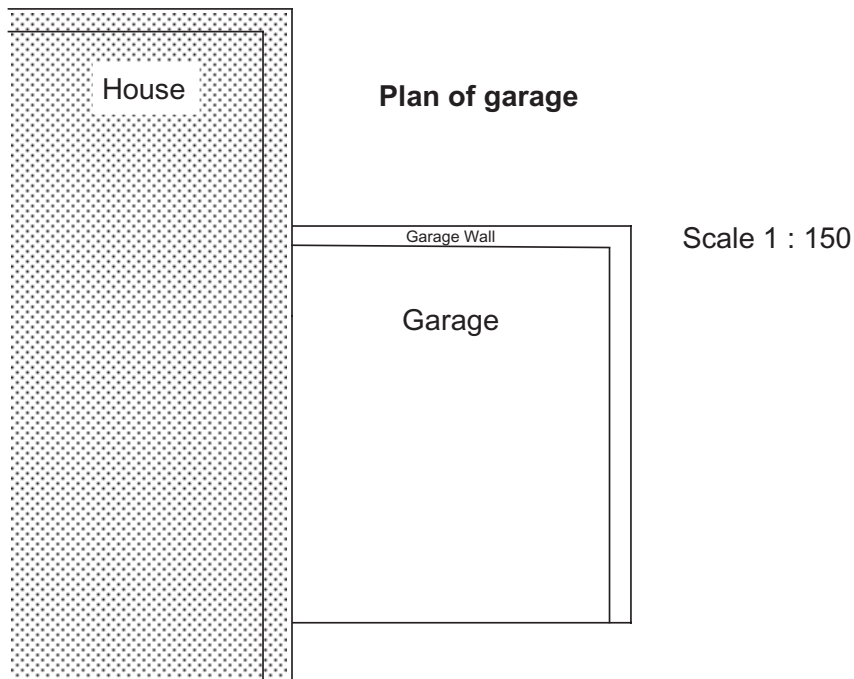
A traveller has 900 francs to change back into £s.

How much should she receive?

- A About £109
- B About £98
- C About £90
- D About £83

Use the information below for questions 33 and 34.

Shown below is the ground plan for a new garage to be built next to a house.



33 What is the actual inside width of the garage?

- A 6.0 m
- B 6.3 m
- C 6.5 m
- D 7.5 m

34 The garage door has to be at least 6 foot 3 inches high. The builder is measuring in metres and working to the nearest centimetre.

What height should he use for the height of the door? (1 foot = 30.48 cm and 12 inches = 1 foot)

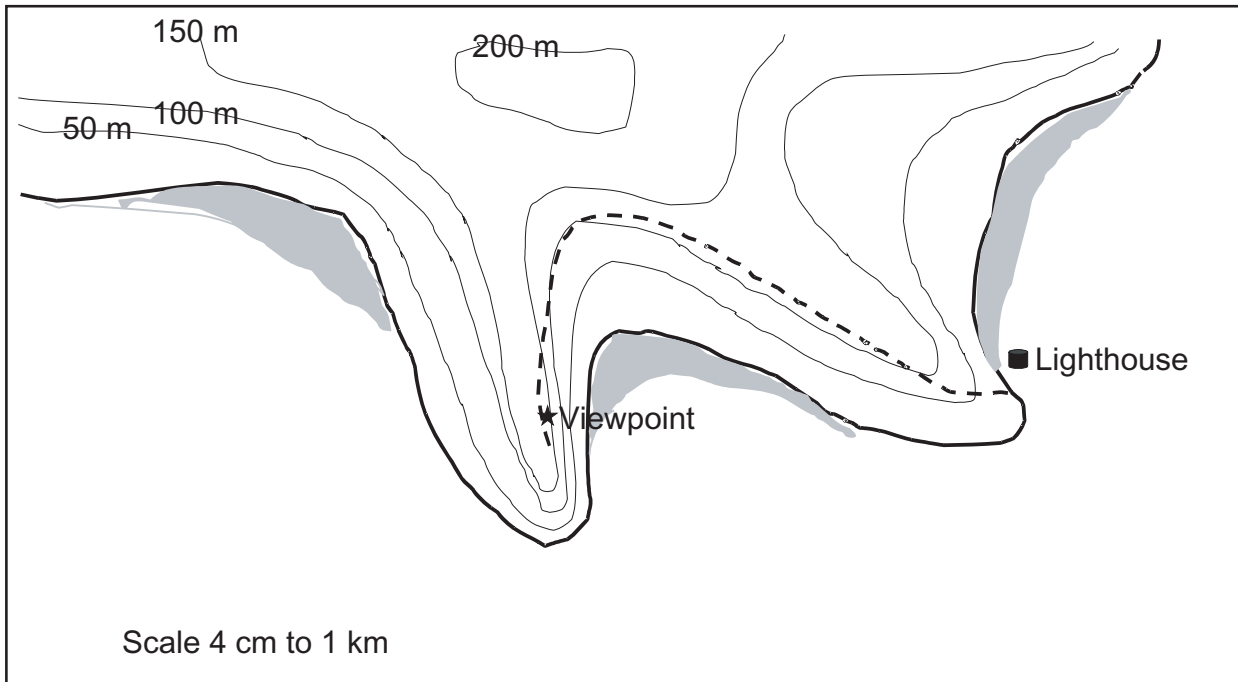
- A 1.85 m
- B 1.90 m
- C 1.905 m
- D 1.91 m

Use the information below for questions 35 and 36.

Hikers use this section of a map to check their route along a footpath.

The contour lines show heights above sea level.

The footpath is shown by a broken line - - - - .



35 Estimate the length of the footpath between the Viewpoint and the Lighthouse.

- A 2.0 km
- B 2.3 km
- C 2.5 km
- D 9.2 km

36 On the map, the height above sea level is shown in metres by each contour line.

Which of these best describes the walk from the Viewpoint to the Lighthouse?

- A Down gently to start with, then more steeply down near the end
- B Up steeply then down quite steeply, then up a bit at the end
- C Level at first, then steeply down, level for a time, then steeply down again
- D Level for most of the way, then steeply dropping at the end

Use the information below for questions 37, 38, 39 and 40.

The Tide Table is for Little Creek Harbour over a period of 10 days. Boat users refer to the Tide Table to make sure they can bring their boats in and out of the harbour safely.

The depth of water in the harbour changes all the time, as the tide comes in and goes out.

The table shows the times of High Water, H (when the water in the harbour is deepest) - and Low Water, L (when the water in the harbour is shallowest).

### Tide Table for Little Creek Harbour

Date	Time	Depth of water (metres)
24.3.01	0219	0.5 L
	0905	4.1 H
	1437	0.7 L
	2117	3.9 H
25.3.01	0247	0.8 L
	0929	3.8 H
	1502	1.0 L
	2142	3.6 H
26.3.01	0313	1.1 L
	0958	3.5 H
	1525	1.3 L
	2212	3.4 H
27.3.01	0340	1.4 L
	1034	3.2 H
	1553	1.5 L
	2253	3.1 H
28.3.01	0422	1.6 L
	1120	2.9 H
	1648	1.8 L
	2348	2.9 H

Date	Time	Depth of water (metres)
29.3.01	0541	1.9 L
	1230	2.7 H
	1817	1.9 L
30.3.01	0112	2.8 H
	0704	1.8 L
	1431	2.8 H
	1939	1.8 L
31.3.01	0304	3.1 H
	0822	1.5 L
	1546	3.1 H
	2054	1.5 L
01.4.01	0408	3.4 H
	0928	1.2 L
	1640	3.4 H
	2153	1.2 L
02.4.01	0459	3.8 H
	1020	0.9 L
	1727	3.6 H
	2242	0.9 L

37 The tide depths are given to the nearest 0.1 metres. This means that the exact tide depths are no more than

- A 5 mm from the depths in the table
- B 10 mm from the depths in the table
- C 5 cm from the depths in the table
- D 10 cm from the depths in the table

- 38 Which of these statements describes the data in the table?
- A The high tide is never less than 3 metres deep
  - B The high tide depths gradually get less and less over the ten days
  - C The low tide depths increase gradually and then get less again
  - D The high tide and low tide depths decrease together
- 39 A boat owner wants to dock his boat at Little Creek for as long as possible, but the range of tide depths must be no more than 1.8 metres while his boat is docked.
- Which of these periods will be the best?
- A 26.3.01 - 01.4.01
  - B 26.3.01 - 30.3.01
  - C 27.3.01 - 01.4.01
  - D 27.3.01 - 31.3.01
- 40 Which of these statements fits the data in the table?
- A Between the 27th March and 31st March the tide depth is never less than 1.3 metres
  - B The difference between Low Tide depth and High Tide depth gets less and less during the 10 days
  - C Every nine days there is a high tide of at least 4 metres
  - D On days when there is less depth of water at Low Tide, there is also less depth of water at High Tide