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FOR WALES



# Key skills application of number Adult numeracy Level 2

Monday 15 March 2004

## Test Paper

### YOU NEED

- This test paper
- An answer sheet
- A ruler marked in mm and cm

**You may NOT use a calculator**

**You may use a bilingual dictionary**

**You may write on this paper if it helps you to work things out**

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**Do NOT open this paper until you are told to do so by the supervisor**

**THERE ARE 40 QUESTIONS IN THIS TEST**

**Total marks available: 40**

**Try to answer ALL the questions**

**YOU HAVE 1 HOUR 15 MINUTES TO FINISH THE TEST**

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### INSTRUCTIONS

- Make sure your personal details are entered correctly on the answer sheet
  - Read each question carefully
  - Follow the instructions on how to complete the answer sheet
  - At the end of the test, hand the test paper, your answer sheet and all notes to the supervisor
- 

**REMEMBER: YOU HAVE 1 HOUR 15 MINUTES TO FINISH THE TEST**

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Ref: AoN/L2/2.1/P4

Questions 1 to 5 are about a holiday in France.

- 1 Two friends go on a holiday to France. They take their car and travel by ferry. The tables give information about ferry prices and times.

<b>Ferry Prices to France</b>						
Prices for a car and two passengers:						
Date of outward journey	11 Apr-26 Apr 13 Jul-18 Aug		27 Apr-12 Jul 19 Aug-26 Sep		27 Sep-10 Apr	
Ticket type	Single	Return	Single	Return	Single	Return
<b>Mini break:</b> Up to 5 days abroad	£111	£216	£78	£146	£54	£108
<b>Saver fare:</b> 6 to 10 days abroad	£143	£282	£102	£194	£76	£152
<b>Standard:</b> More than 10 days abroad	£179	£356	£126	£250	£86	£172

<b>Sailing Times to France</b>		
	Departure time	Crossing time
<b>Day Crossing</b>	1045*	8 hours 45 minutes
<b>Night Crossing</b>	2215*	10 hours 30 minutes
*British Summer Time French local time is British Summer Time + 1 hour		

What is the range of the possible return ferry prices?

- A £44
  - B £61
  - C £248
  - D £302
- 2 The two friends book to go to France on 5 June and return on 12 June. What is the price of their return ticket?
- A £102
  - B £194
  - C £250
  - D £282

- 3** The ferry departure times in the table are given in British Summer Time.  
The friends use the night crossing.

When is the ferry due to arrive in France in French local time?

- A 0745
- B 0845
- C 0945
- D 1145

- 4** On a map, the distance from the port to the friends' destination is 27 centimetres. The scale of the map is 2 centimetres to 5 kilometres.

The actual distance is

- A 2.7km
- B 10.8km
- C 67.5km
- D 135km

- 5** The exchange rate is 1 euro = 62.5 pence.

The friends change £120 to euros.

Which of these calculations gives £120 in euros?

A  $\frac{62.5}{120 \times 100}$

B  $\frac{120}{62.5 \times 100}$

C  $\frac{62.5 \times 100}{120}$

D  $\frac{120 \times 100}{62.5}$

Questions 6 to 10 are about an ice rink.

In August, 1050 people visited the ice rink.

- 6 The number of children who visited the ice rink that month was 675 and the rest were adults.

What is the ratio of the number of children to the number of adults?

- A 9 : 14  
B 14 : 9  
C 5 : 9  
D 9 : 5
- 7 In September, the number of visitors to the ice rink increased to 1575 from 1050 in August.

The percentage increase in the number of visitors is

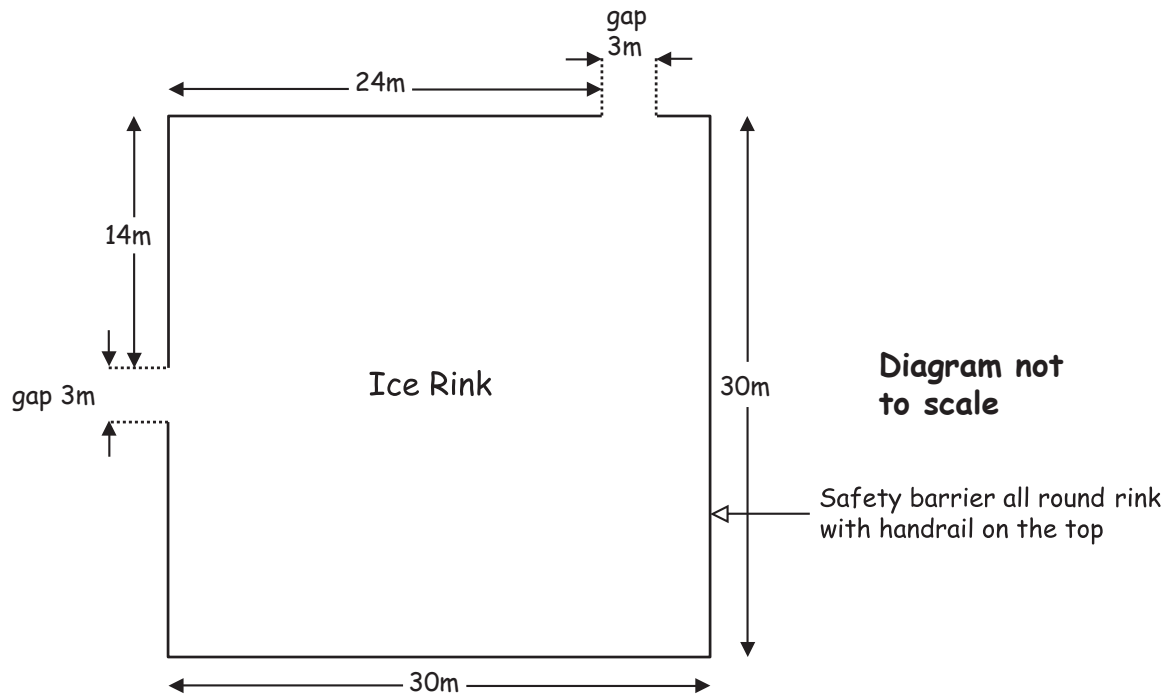
- A 5%  
B 33%  
C 50%  
D 67%
- 8 The price of a child's ticket is £3.60  
An adult's ticket costs £4.50 more.  
What is the price of a child's ticket as a fraction of the price of an adult's ticket?

- A  $\frac{1}{5}$   
B  $\frac{4}{9}$   
C  $\frac{5}{9}$   
D  $\frac{4}{5}$

Questions 9 and 10 are about a plan of the ice rink.

This is a plan of the ice rink.

Plan view of the ice rink



9 The ice is 10 centimetres thick.

What is the volume of ice in the ice rink?

- A  $12\text{m}^3$
- B  $90\text{m}^3$
- C  $1200\text{m}^3$
- D  $9000\text{m}^3$

10 There is a safety barrier all round the ice rink, with two gaps for access.

There is a handrail along the top of the safety barrier. The manager wants to replace the handrail.

What length of handrail does she need?

- A 98m
- B 104m
- C 114m
- D 120m

Questions 11 to 15 are about an electrician.

**11** An electrician earns a basic rate of £11.20 per hour for a 35-hour week. For each hour worked over 35 hours, he earns  $1\frac{1}{4}$  times the basic rate. One week he works for 40 hours. How much does he earn?

- A £392
- B £448
- C £462
- D £560

**12** The electrician's basic rate of £11.20 is increased by  $2\frac{1}{2}\%$ . Which calculation gives his **new basic rate** of pay per hour?

- A  $£11.2 \times \frac{2.5}{100}$
- B  $£(11.2 + 2.5 \times 100)$
- C  $£ \frac{2.5 \times 100}{11.2}$
- D  $£(11.2 \times \frac{2.5}{100} + 11.2)$

**13** The electrician needs 60 feet of cable.

1 foot = 12 inches, 1 metre is approximately 40 inches.

Approximately how many metres of cable does he need?

- A 8m
- B 18m
- C 112m
- D 200m

- 14 The electrician works out the total resistance of two electrical components using the formula

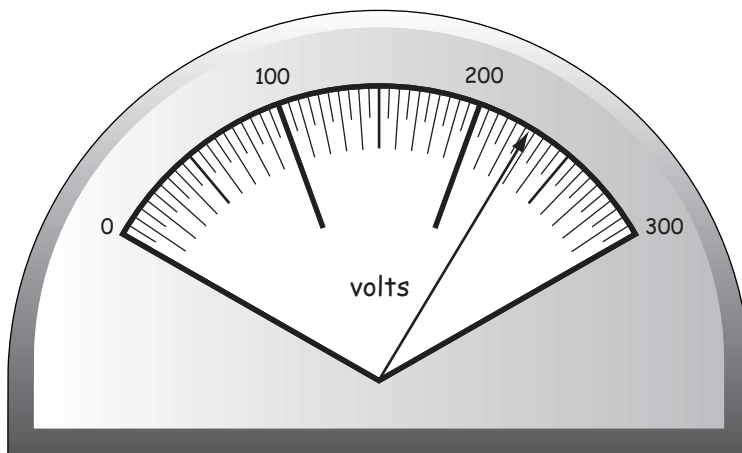
$$\text{Total resistance} = \frac{Rr}{R + r} \text{ ohms}$$

where  $R=3$

$r=2$

What is the total resistance of the two electrical components in ohms?

- A 1.2
  - B 4
  - C 6
  - D 6.4
- 15 The electrician finds the voltage across a circuit with a voltmeter. The diagram shows the reading on the dial of the voltmeter.



What is the voltage, to the nearest ten volts?

- A 220 volts
- B 225 volts
- C 230 volts
- D 250 volts

Questions 16 to 20 are about recycling waste.

The table shows the amounts of packaging waste recycled in the UK in 1998, 1999 and 2000.

The amounts are rounded to the nearest thousand tonnes.

Recycled Packaging Waste			
	1998	1999	2000
Materials	Tonnes	Tonnes	Tonnes
Aluminium	15 000	15 000	16 000
Glass	504 000	583 000	715 000
Plastic	126 000	198 000	204 000
Steel	182 000	225 000	239 000
Paper	1 894 000	1 821 000	1 880 000
Wood	170 000	94 000	297 000
<b>Total recycling in UK</b>	<b>2 891 000</b>	<b>2 936 000</b>	<b>3 351 000</b>

**16** Between 1998 and 2000, which type of packaging waste had the greatest range in the amounts recycled?

- A glass
- B plastic
- C paper
- D wood

**17** A journalist wants to use a chart to compare the **proportions** of recycled packaging contributed by each material in 2000.

The **most** appropriate chart is a

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

**18** Local authorities must recycle at least 30% of household waste by 2010.

West Berkshire collects 70 000 tonnes of household waste each year.

Last year West Berkshire recycled 7 500 tonnes of this waste.

How much **more** household waste must West Berkshire recycle in 2010?

- A 2 250 tonnes
- B 9 750 tonnes
- C 13 500 tonnes
- D 21 000 tonnes

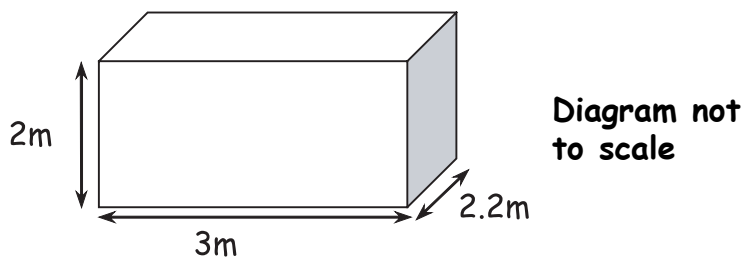
**19** Last year West Berkshire recycled 7 500 tonnes of waste.

One recycling centre in West Berkshire recycles 840 tonnes of household waste per year.

As a percentage of the household waste recycled in West Berkshire last year, 840 tonnes is approximately

- A 1%
- B 9%
- C 11%
- D 15%

**20** The diagram shows the dimensions of a waste container.



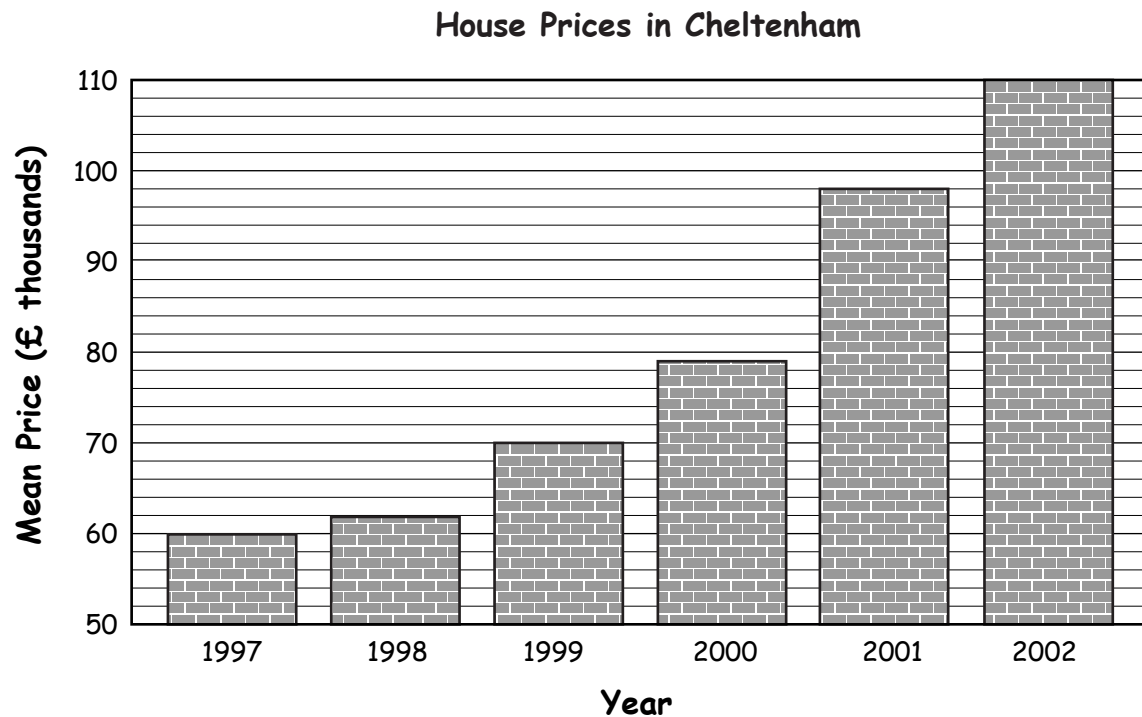
What is its volume?

- A  $7.2\text{m}^3$
- B  $13.2\text{m}^3$
- C  $17.0\text{m}^3$
- D  $21.6\text{m}^3$

Questions 21 to 24 are about buying a house.

Kate and Neil are selling their flat in Gloucester and buying a house in Cheltenham.

**21** An estate agent draws a bar chart to show how quickly house prices in Cheltenham have increased in recent years.



Why is the chart misleading?

- A the horizontal axis has gaps
- B the horizontal axis does not start at zero
- C the vertical axis has gaps of two thousand
- D the vertical axis does not start at zero

- 22** The table shows the number of bedrooms in the last 20 properties that the estate agent sold in Gloucester and Cheltenham.

Number of bedrooms	Number of properties	
	Gloucester	Cheltenham
1	2	3
2	5	5
3	6	8
4	5	4
5	2	0
Total	20	20

The estate agent compares the mean and the modal number of bedrooms in properties sold in Gloucester and Cheltenham.

The mean and the mode for Gloucester are both 3

Which of the following statements is true?

- A The mean is higher in Gloucester and the mode is the same in each town
  - B The mean is higher in Gloucester and the mode is higher in Cheltenham
  - C The mean is the same in each town and the mode is higher in Cheltenham
  - D The mean and the mode are both the same in each town
- 23** Kate and Neil's bank uses this formula to work out the maximum mortgage it gives house buyers.

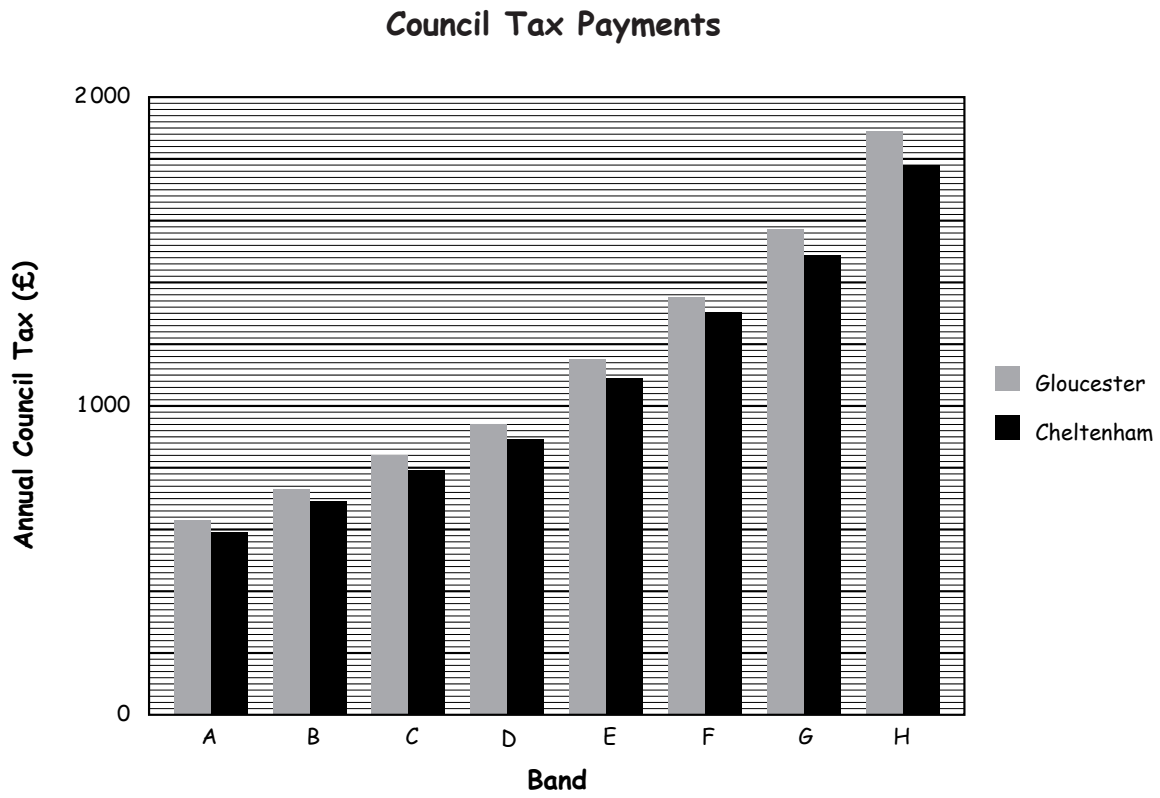
$$\text{Maximum mortgage} = 2\frac{1}{2} \times \text{the total annual salary of the buyers}$$

Kate earns £21 500 a year and Neil earns £16 200 a year.

What is the maximum mortgage the bank can give them?

- A £40 200
- B £40 500
- C £53 750
- D £94 250

24 The chart shows the bands and council tax payments in Gloucester and Cheltenham.



The house Neil and Kate buy in Cheltenham is in Band F.  
Approximately how much council tax will they pay?

- A £1150
- B £1180
- C £1300
- D £1360

Questions 25 to 29 are about organising a party.

- 25** The cost of invitation cards is a fixed charge for the design plus a printing charge for each card.

Invitation Cards	
Design Charge	£5
Printing	4p per card

The printer charges £9.80 for designing and printing 120 cards.

Which of these checks his calculation?

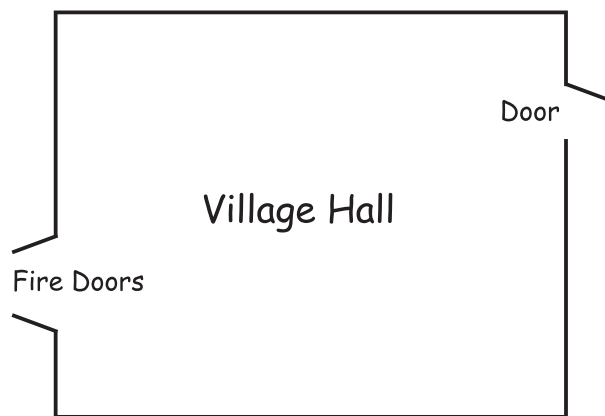
- A**  $\frac{9.80 - 4}{0.05} = 120$
- B**  $\frac{9.80 - 5}{0.04} = 120$
- C**  $\frac{9.80 - 5}{0.4} = 120$
- D**  $\frac{9.80 - 4}{0.5} = 120$
- 26** A bottle of grape juice contains 75 centilitres. This is enough to fill 6 small glasses.
- 1 litre = 100 centilitres
- How many of these small glasses will 3 one-litre juice cartons fill?
- A** 18
- B** 24
- C** 38
- D** 50

**27** A DJ charges an attendance fee of £50, plus £7.50 per hour for playing party music.

How much does he charge to play from 8:30pm to 2am the following morning?

- A £76.25
- B £85.25
- C £91.25
- D £98.75

**28** The party is in a village hall. The diagram is a scale drawing of the hall.



Scale = 1 : 200

The longest length of the actual village hall is

- A 3.4m
- B 6.8m
- C 10.8m
- D 13.6m

**29** The Health and Safety Policy for the hall states that each person in the hall must have at least  $0.5\text{m}^2$  of floor space.

Which of these calculations indicates the maximum number of people the hall may hold?

**A** 
$$\frac{\text{length in metres} \times \text{width in metres}}{0.5}$$

**B** 
$$\frac{\text{length in metres} + \text{width in metres}}{0.5}$$

**C** 
$$\frac{0.5}{\text{length in metres} \times \text{width in metres}}$$

**D** 
$$\frac{0.5}{\text{length in metres} + \text{width in metres}}$$

**Please go on to the next page**

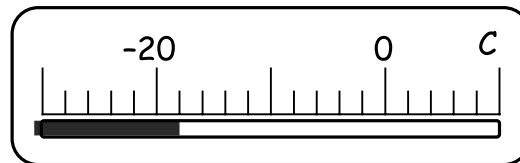
Questions 30 to 33 are about ice cream.

A shopkeeper makes and sells ice cream.

He defrosts, cleans and restocks one of his freezers.

**30** The freezer thermometer shows the temperature in a freezer before the shopkeeper defrosts it.

**Freezer thermometer**



What is the temperature on the thermometer?

- A - 18°C
- B - 19°C
- C - 21°C
- D - 22°C

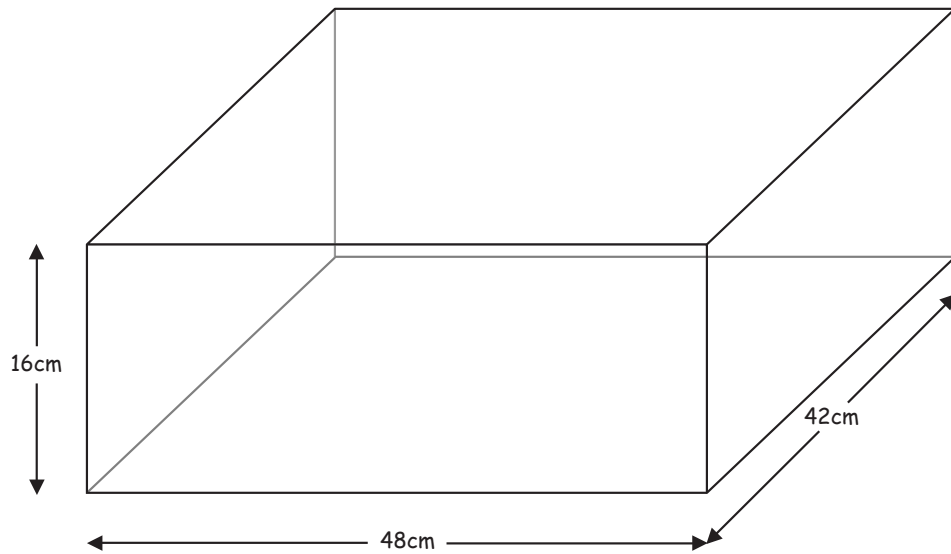
**31** After the shopkeeper cleans the freezer its temperature is 6°C.

The temperature must fall to -15°C before he puts in the ice cream.

By how many degrees must the temperature fall?

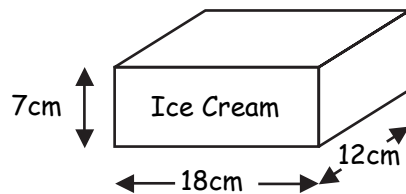
- A 9°C
- B 11°C
- C 15°C
- D 21°C

**32** The freezer has baskets.



**Diagram not to scale**

The shopkeeper packs one basket with blocks of ice cream.



**Diagram not to scale**

The shopkeeper arranges the ice cream blocks to fit as many as he can into the basket.

What is the maximum number of ice cream blocks he can fit into the basket?

- A** 6
- B** 8
- C** 12
- D** 16

**33** The shopkeeper makes some 'rum & raisin' ice cream using this recipe

**Rum & Raisin Ice Cream**

3 egg yolks

75g sugar

5ml vanilla essence

100ml water

450ml fresh double cream

30ml rum

100g raisins

1 litre = 1000ml

The shopkeeper uses 2 litres of fresh double cream.

Which calculation gives the amount of sugar he uses, in grams?

**A**  $\frac{2 \times 1000}{450} \times 75$

**B**  $\frac{450}{2 \times 1000} \times 75$

**C**  $\frac{2 \times 1000}{75} \times 450$

**D**  $\frac{75}{2 \times 1000} \times 450$

Questions 34 and 35 are about a small business.

**34** The business starts the year with a balance of £85

The balance sheet for the first three months of the year is shown below.

<b>Balance sheet</b>			
	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
Balance at start of month (£)	85	167	-25
Profit or Loss (£)	82	-192	-153
Balance at end of month (£)	167	-25	

The balance for the end of March is missing.

What is the balance for the end of March?

- A £-178
- B £-128
- C £ 128
- D £ 178

**35** Sales in January totalled £ 2 530

Sales in February totalled £520

Compared with January, sales in February decreased by approximately

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

Questions 36 to 40 are about emergency calls.

When the police send cars to crime scenes after emergency calls they aim to

- arrive at **urban** crime scenes in **less than 10 minutes**
- arrive at **rural** crime scenes in **less than 20 minutes**.

The table shows the times one police car takes to arrive at 10 crime scenes after emergency calls.

Call	1	2	3	4	5	6	7	8	9	10
Type of call*	U	R	U	U	U	R	U	R	U	U
Time taken to arrive (min)	8	24	7	9	12	11	5	19	8	14
*U represents urban and R represents rural										

**36** In what percentage of these calls did the police car meet the target times?

- A 60%
- B 70%
- C 80%
- D 90%

**37** What is the median time taken to arrive at a crime scene?

- A 8 minutes
- B 10 minutes
- C 11.5 minutes
- D 11.7 minutes

**38** What is the range of times taken to arrive at **urban** crime scenes?

- A 6 minutes
- B 9 minutes
- C 14 minutes
- D 19 minutes

**39** The police aim to

- achieve 88% or more of the urban target times
- achieve 88% or more of the rural target times.

Response times to emergency calls				
Type of crime scene	Target response time	Number of calls	Mean time taken to arrive (nearest min)	% calls attended within target times
Urban	10 min	68	12 min	93%
Rural	20 min	32	17 min	72%

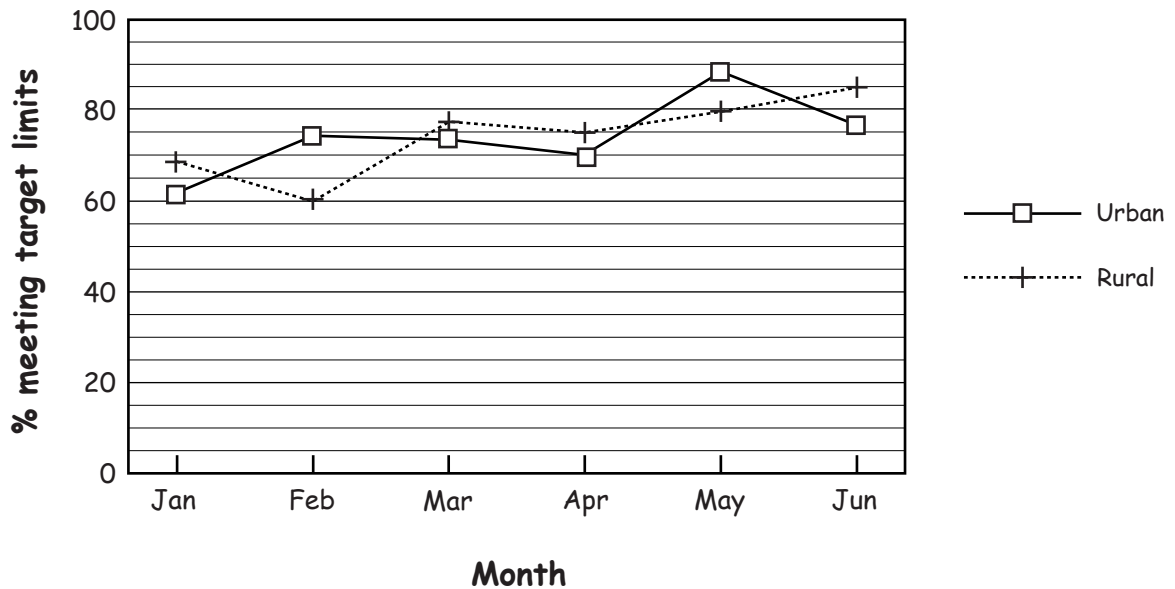
To achieve their aim, the police must

- A** reduce the % of rural crime scenes police cars reach in less than 20 minutes
- B** increase the % of rural crime scenes police cars reach in less than 20 minutes
- C** increase the % of urban crime scenes police cars reach in less than 10 minutes
- D** reduce the % of urban crime scenes police cars reach in less than 10 minutes

**Please go on to the next page**

40 The graph shows the response time performance for all the police cars from a police station for the last 6 months.

Police cars' response time performance at crime scenes after emergency calls



In how many months were the response times for rural calls better than for urban calls?

- A 1
- B 2
- C 4
- D 5

End of test