Key skills application of number
Adult numeracy
Level 2

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

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

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

INSTRUCTIONS TO CENTRES

- **This paper must not be photocopied**

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Questions 1 to 5 are about a woman changing her job.

1 The woman has worked long enough to earn a leaving bonus.
She can work out how much the bonus is from this table

Leaving bonus in £							
Age	**Service in years**						
	10	**11**	**12**	**13**	**14**	**15**	**16**
51	2800	3200	3400	3500	3600	3800	4000
52	3000	3300	3500	3700	3900	4100	4300
53	3000	3300	3600	3800	4000	4200	4400
54	3000	3300	3600	3900	4100	4300	4500
55	3000	3300	3600	3900	4200	4400	4600
56	3000	3300	3600	3900	4200	4500	4800

The woman is 54 years old and has worked for 15 years.

What is her leaving bonus?

A £3 000
B £3 800
C £4 300
D £4 400

2 In her new job her basic pay is £8.25 per hour for a forty-hour week.
In her old job her basic pay was £282 per week.

What is her increase in basic pay per week in the new job?

A £46
B £48
C £52
D £58

Questions 3 and 4 use the following information.

In her new job the woman's basic working week is 40 hours.
Any extra hours count as overtime.

3 The office manager keeps a record of the hours the woman works each week.

This is the woman's record for last week

		MON	TUES	WED	THUR	FRI
MORNING	START	9:00am	9:00am	9:00am	9:00am	9:00am
	FINISH	1:00pm	1:00pm	1:00pm	1:00pm	1:00pm
AFTERNOON	START	2:00pm	1:45pm	2:00pm	2:00pm	2:00pm
	FINISH	5:00pm	8:00pm	6:00pm	6:45pm	6:45pm

How much overtime did she work last week?

A 2 hours 05 minutes
B 2 hours 45 minutes
C 3 hours 25 minutes
D 3 hours 45 minutes

4 This week she works a total of 45 hours and 15 minutes.
She earns £8.25 per hour for her basic 40-hour week.
She earns £12.30 for each hour of overtime.

Her pay slip says her earnings are £394.58

Which calculation gives a **rough check** of whether her pay slip is correct?

A (40 × 8) + 45 × (12 - 8)
B (40 × 8) + (45 × 12)
C (40 × 8) + (45 - 40) × (12 - 8)
D (40 × 8) + (45 - 40) × 12

5 The woman receives 2.25% commission on the value of her sales when her sales are more than £30 000 in a month.

The company uses this formula to work out her commission each month

Commission for month = (value of sales for month - £30 000) × 2.25 ÷ 100

The woman works out an estimate to check her commission for this month.
The value of her sales this month is £48 560

Which of these calculations gives the closest estimate of her commission?

A £20 000 × 2 ÷ 100
B £20 000 × 3 ÷ 100
C £10 000 × 2 ÷ 100
D £10 000 × 3 ÷ 100

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Questions 6 to 11 are about a group from an archaeological society.

The group searches a ploughed field for man-made objects.

6 The area of the field is 3.6 acres.

1 acre is approximately 4 000m^2

What is the area of the field in square metres?

A 1 110m^2
B 1 440m^2
C 11 100m^2
D 14 400m^2

7 A group member makes a scale drawing of part of the field.
She uses a scale of 1 : 200
One edge of the paper she uses is 30 centimetres long.

The maximum distance on the ground that she can show along this edge of the paper is

A 15m
B 60m
C 67m
D 150m

8 The group marks out the field into squares with sides of 20 metres to form a grid.
The members pick up and count all man-made objects in each square.

The diagram shows part of the field with the 15 grid squares A1 to C5.

	A	B	C
5	**P**11 **J**1 **T**12 **F**2	**P**12 **J**3 **T**14 **F**1	**P**10 **J**2 **T**6 **F**4
4	**P**8 **J**0 **T**11 **F**1	**P**11 **J**1 **T**18 **F**2	**P**13 **J**1 **T**4 **F**0
3	**P**7 **J**1 **T**8 **F**0	**P**19 **J**1 **T**10 **F**0	**P**8 **J**1 **T**12 **F**2
2	**P**4 **J**0 **T**9 **F**1	**P**9 **J**1 **T**9 **F**1	**P**14 **J**1 **T**8 **F**0
1	**P**14 **J**0 **T**5 **F**0	**P**13 **J**0 **T**6 **F**2	**P**10 **J**2 **T**12 **F**1

Key

P pottery pieces
T tile pieces
F flint objects
J other objects

Example
F2 means 2 flint objects

What is the difference between the total number of **pottery** and **tile** pieces found in grid A1 and the total number of **pottery** and **tile** pieces found in grid C1?

A 3
B 4
C 6
D 7

9 One day the group searches grid squares **D1**to **E5**.
The table shows the number of minutes spent searching each of these grid squares.

Morning	**Grid square**	**D1**	**D2**	**D3**	**D4**	**D5**
	Minutes	20	22	25	28	20
Afternoon	**Grid square**	**E1**	**E2**	**E3**	**E4**	**E5**
	Minutes	20	22	20	23	25

What is the difference between the mean time spent searching each square in the morning and the mean time spent searching each square in the afternoon?

A 0 minutes
B 1 minute
C 3 minutes
D 5 minutes

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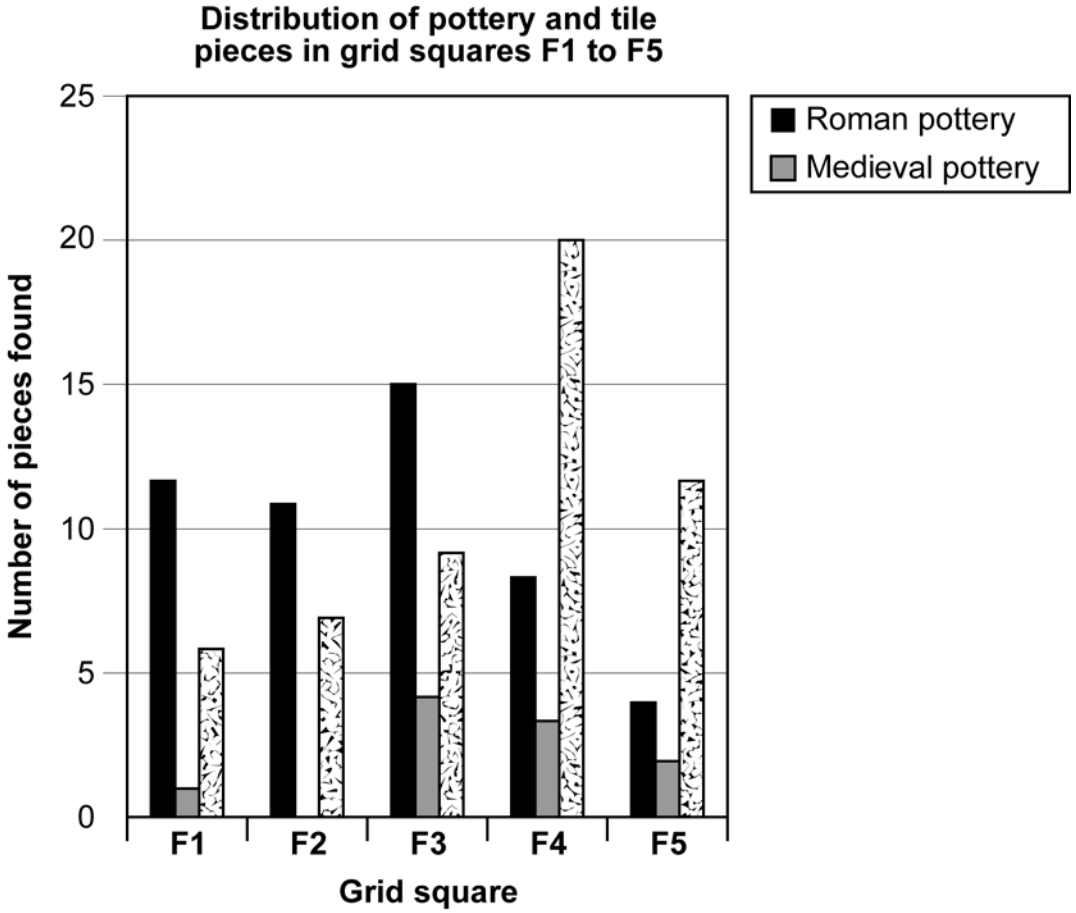
10 The table shows the number of pottery and tile pieces found in grid squares F1 to F5.

Grid square	Roman pottery	Medieval pottery	Tile
F1	12	1	6
F2	11	0	7
F3	15	4	9
F4	8	3	20
F5	4	2	12

A member of the group draws a bar chart showing this information.

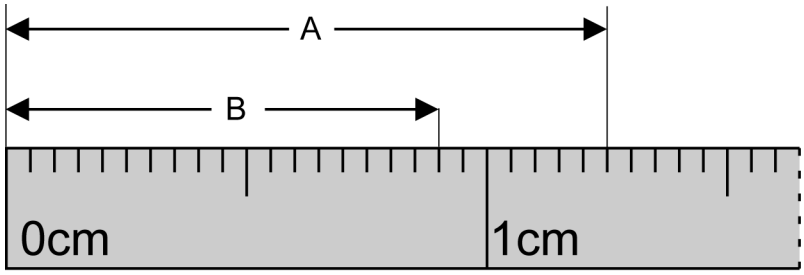


He makes an error in the bar chart.

The error is in

A the title.
B the key.
C the scale on the vertical axis.
D the label on the horizontal axis.

11 A member of the group measures the lengths of two flint tools A and B.



What is the difference between length A and length B?

A 0.35cm
B 0.40cm
C 0.45cm
D 0.70cm

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Questions 12 to 16 are about a family touring Spain by car.

The family travels from England by air.
In Spain, they hire a car.

12 The table shows the cost of car hire for 14 days.

Cost of car hire for 14 days in £		
Type of car	**Economy**	**Compact**
Payment in advance	216.80	278.80
Payment on arrival	268.20	351.50
Baby seat	22.55	22.55
Child seat	27.75	27.75

The family pays **on arrival** for an economy car with a child seat.

What is the total cost?

A £244.55
B £290.75
C £295.95
D £379.25

13 The family stops on the journey to their hotel to buy a snack.

a sandwich costs ……. 2.80 euros
a lemonade costs …… 0.75 euros
a coffee costs …… 1.20 euros

They buy three sandwiches, one lemonade and two coffees.

What is the total cost?

A 9.55 euros
B 9.95 euros
C 10.55 euros
D 11.55 euros

14 The driver fills up the tank of the car with petrol. It costs 35 euros.
The exchange rate is

£0.70 = 1 euro

What is the cost of the petrol in pounds?

A £20.00
B £24.50
C £34.30
D £50.00

15 The family stays in hotels in Barcelona, Tarragona, Villareal, and Valencia.
The table shows the number of nights the family stayed in each town and the cost per night.

Hotel accommodation				
	Barcelona	**Tarragona**	**Villareal**	**Valencia**
Number of nights stayed	5	3	4	2
Cost of hotel per night in £	85	46	58	64

Which calculation gives the average (mean) cost per night in pounds?

A $\frac{85 + 46 + 58 + 64}{4}$

B $\frac{85 \times 5 + 46 \times 3 + 58 \times 4 + 64 \times 2}{4}$

C $\frac{5 + 3 + 4 + 2}{85 \times 5 + 46 \times 3 + 58 \times 4 + 64 \times 2}$

D $\frac{85 \times 5 + 46 \times 3 + 58 \times 4 + 64 \times 2}{5 + 3 + 4 + 2}$

16 The total cost of the holiday is £2 500
The cost of the family's flights is £400

What is the cost of the family's flights as a percentage of the total cost?

A 6%
B 10%
C 16%
D 29%

Questions 17 to 22 are about a study of police forces in England and Wales in 2003/4.

The table shows some of the results of the study for an area covered by seven of the forces.

Results of police study 2003/4			
Police force	**Vehicle crime per 1000 residents**	**% of police on front-line duty**	**Overall score for police force**
Cheshire	13.0	65	596
Merseyside	19.4	57	614
West Mercia	10.4	65	604
South Wales	22.5	61	626
North Wales	11.4	58	568
Gwent	16.1	54	596
Dyfed-Powys	4.7	65	794

17 What is the range of the overall scores for these police forces?

A 198
B 226
C 568
D 626

18 The median overall score for the police forces over the whole of England and Wales is 597.5

What is the difference between this and the median overall score for the seven police forces in this area?

A 1.5
B 6.5
C 28.5
D 29.5

19 In Cheshire 65% of the police were on front-line duty.

65% is the same as

A 5 out of 6
B 2 out of 3
C 13 out of 20
D 1 out of 65

20 The report says that there were about 20 vehicle crimes per 1 000 residents in Merseyside during the year.

Merseyside has approximately 1.4 million residents.

Approximately how many vehicle crimes were there in Merseyside during the year?

A 28 000
B 280 000
C 2 800 000
D 28 000 000

21 A researcher thinks there may be a link between the number of vehicle crimes per 1 000 residents and the percentage of police on front-line duty.

Which chart or graph will show him whether this is true?

A a bar chart
B a line graph
C a pie chart
D a scatter graph

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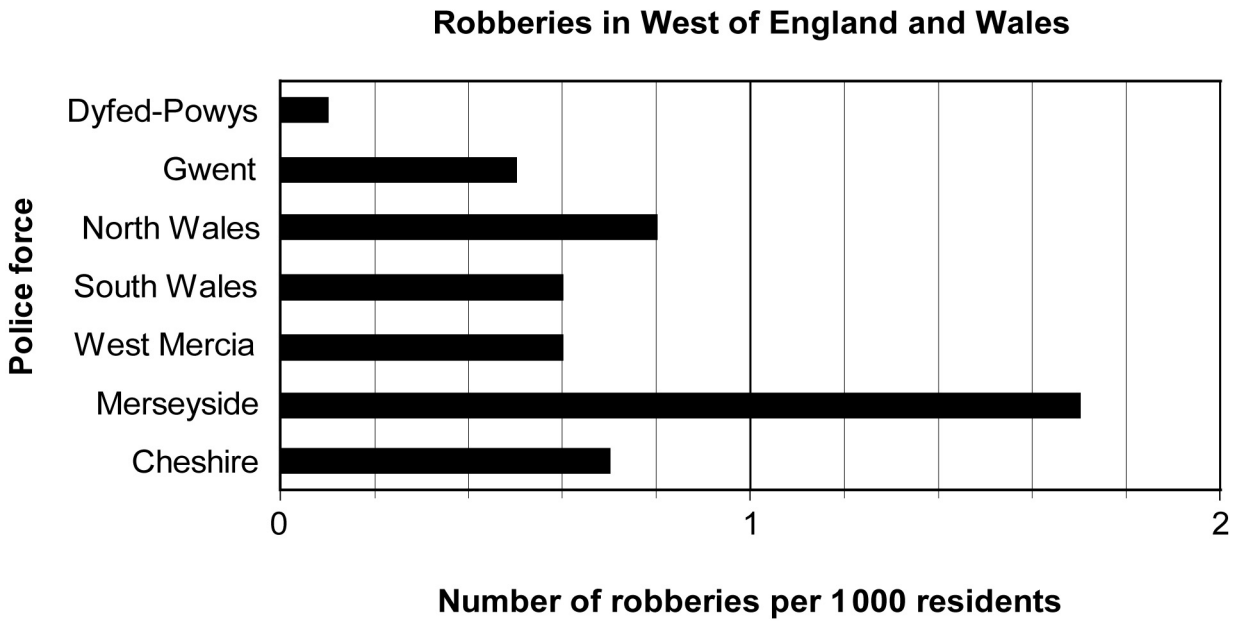
22 The chart shows the number of robberies per 1 000 residents in the West of England and Wales.



The difference between the number of robberies per thousand residents in West Mercia and in Merseyside is

A 1.05
B 1.10
C 1.20
D 1.55

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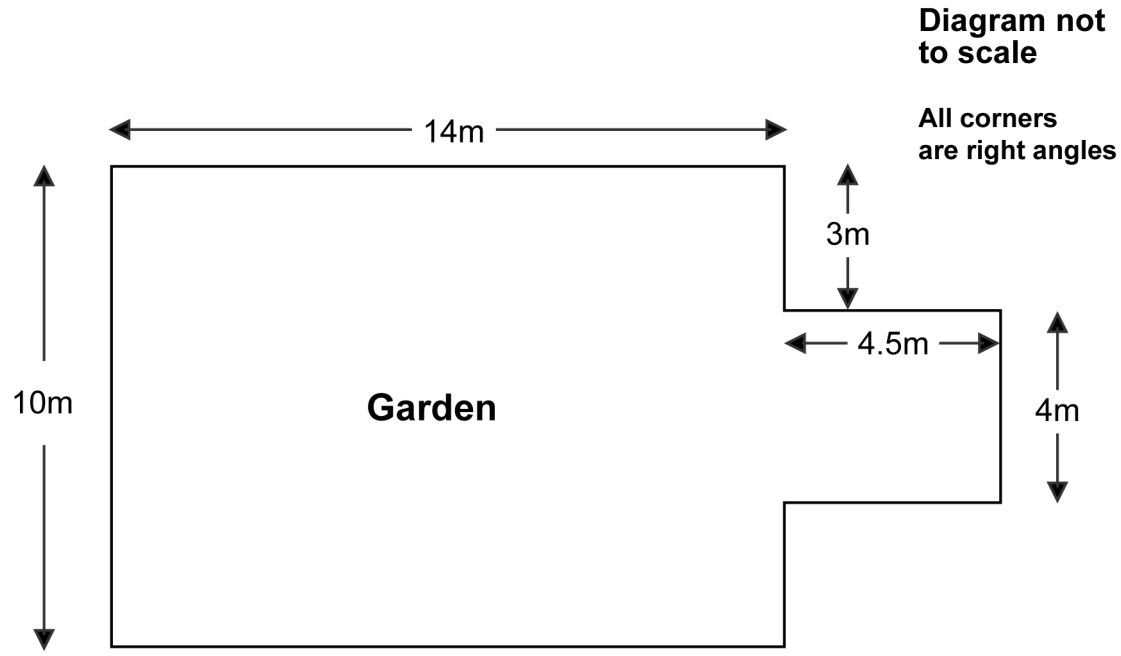
Questions 23 to 27 are about creating a community garden.

This diagram is a sketch plan of the garden



23 The area of the garden is

A 35.5m²
B 57.0m²
C 158.0m²
D 171.5m²

24 The garden designer makes a scale drawing of the garden.

She uses a scale of 1 : 50
The width of the garden is 10m.

What is this width on the **scale drawing**?

A 20mm
B 50mm
C 200mm
D 500mm

25 There is a square raised flower bed in the garden.
The formula for the volume of the soil in this bed is

$$V = 10 L^2 D$$

where **V** is the volume of soil in litres
L is the length of the side of the bed in metres
D is the depth of soil in centimetres

The length of each side of the bed is 3 metres.
The depth of soil in the bed is 60 centimetres.

What is the volume of soil in the bed?

A 76 litres
B 550 litres
C 3 600 litres
D 5 400 litres

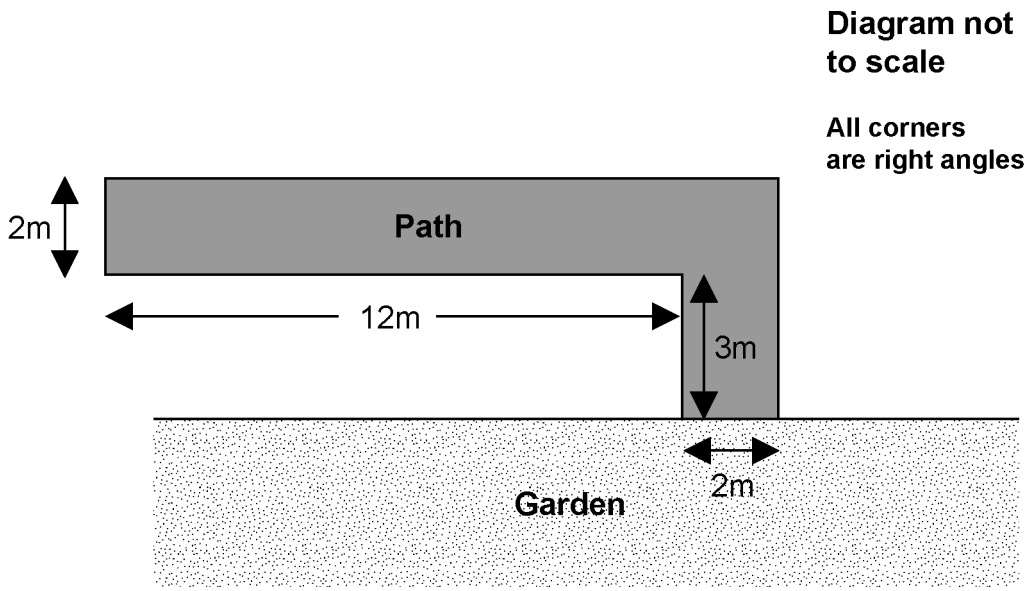
26 The gardener plants spring bulbs in another bed.
The area of this bed is 8.0 square metres.
At the correct spacing, a pack of 24 bulbs is just enough for 0.5 square metres.

How many bulbs does the gardener need for the whole bed using the correct spacing?

A 96
B 167
C 360
D 384

27 A path leads to the garden entrance.

The diagram shows the path leading to the garden entrance.



The path is 2 metres wide.
A builder paves it with square slabs with sides of 50 centimetres.

How many slabs does he need to pave the whole path?

A 152
B 144
C 136
D 120

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Questions 28 to 33 are about a survey of clients at an advice centre for people with debt problems.

The table shows the results of this year's survey.

Amount of different types of debt in £					
Client reference number	**Rent debt**	**Council tax debt**	**Credit debt**	**Other debt**	**Total debt**
121	105		2012	85	**2202**
122	1250	205	436	609	**2500**
123	3000	65	1441		**4506**
124	535		1229	382	**2146**
125	200		5972	1447	**7619**
126	2438	248	1123		**3809**
127	267		5345		**5612**
128	1517				**1517**
129	630	422	8249	400	**9701**
130			168		**168**
Totals	**9942**	**940**	**25975**	**2923**	**39780**

28 In the same survey last year total **council tax debt** was £800

Which calculation gives the percentage increase in council tax debt this year compared to last year?

A $\frac{940 - 800}{800} \times 100$

B $\frac{940 - 800}{940} \times 100$

C $\frac{800}{800 - 940} \times 100$

D $\frac{940}{800 - 940} \times 100$

29 What is the range of the clients' **total debts**?

A £168
B £2034
C £5714
D £9533

30 For how many clients is their rent debt **more than** half of their total debt?

A 2
B 3
C 4
D 6

31 The total rent debt is £9 942
The total overall debt is £39 780

Which of these is closest to the total **rent debt** as a fraction of the total **overall debt**?

A $\frac{1}{3}$

B $\frac{3}{10}$

C $\frac{1}{4}$

D $\frac{9}{40}$

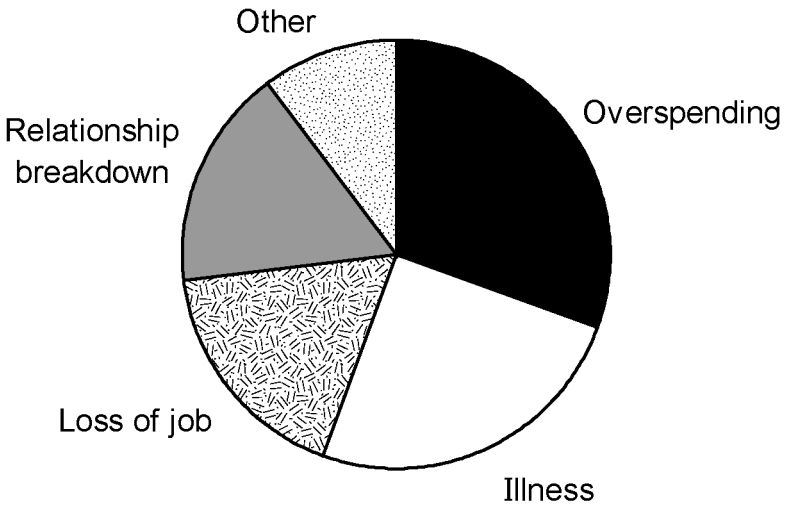
32 One client has a rent debt of £535
She makes one payment of £27 and then pays £4 every week.

How many weeks does it take her to pay the full amount of the rent debt?

A 122 weeks
B 127 weeks
C 128 weeks
D 130 weeks

33 The survey report contains a pie chart showing the different reasons people gave for falling into debt.

Reasons for falling into debt



What does the pie chart show about why the people surveyed fell into debt?

A For about 90% the reason was illness.
B For about one third the reason was overspending.
C For about one quarter the reason was loss of job.
D For about one tenth the reason was relationship breakdown.

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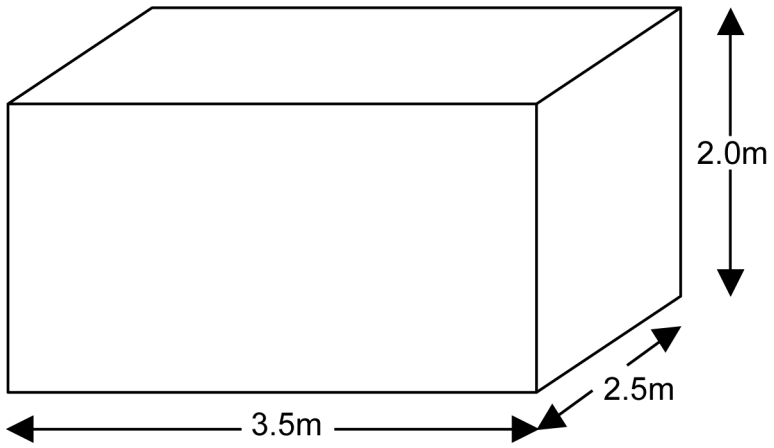
Questions 34 to 40 are about a man using a greenhouse.

34 The man wants a heater for his greenhouse.
The size of the heater depends on the volume of the greenhouse.
The greenhouse is approximately a cuboid.

This simplified diagram shows the measurements

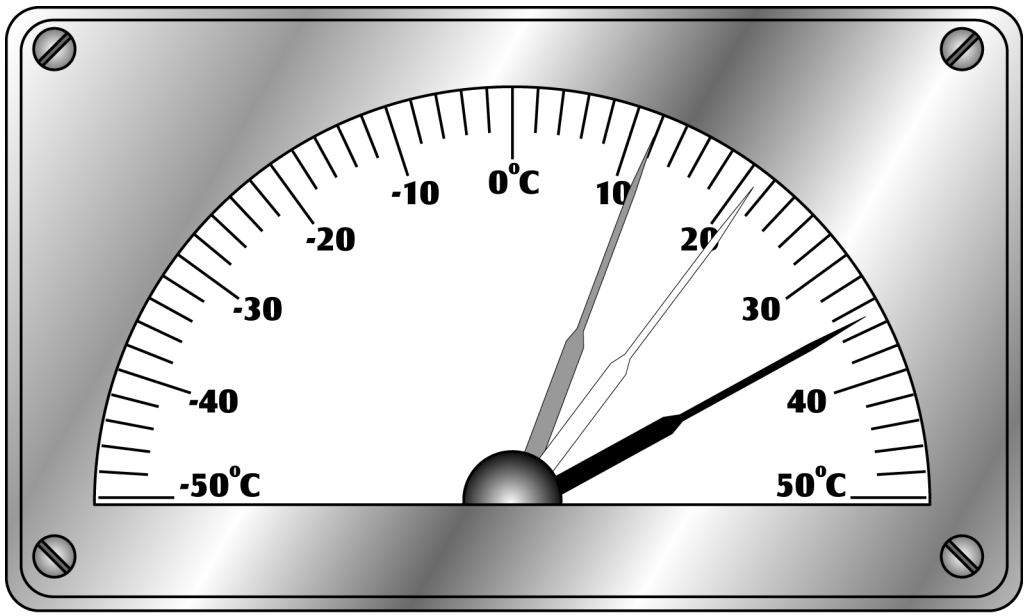
Diagram not to scale



What is the volume of the greenhouse in cubic metres?

A $8.0m^3$
B $9.5m^3$
C $12.0m^3$
D $17.5m^3$

35 The man uses a maximum and minimum thermometer in the greenhouse. The diagram shows the maximum and minimum temperatures recorded one day.



Key to arrows

Minimum temperature

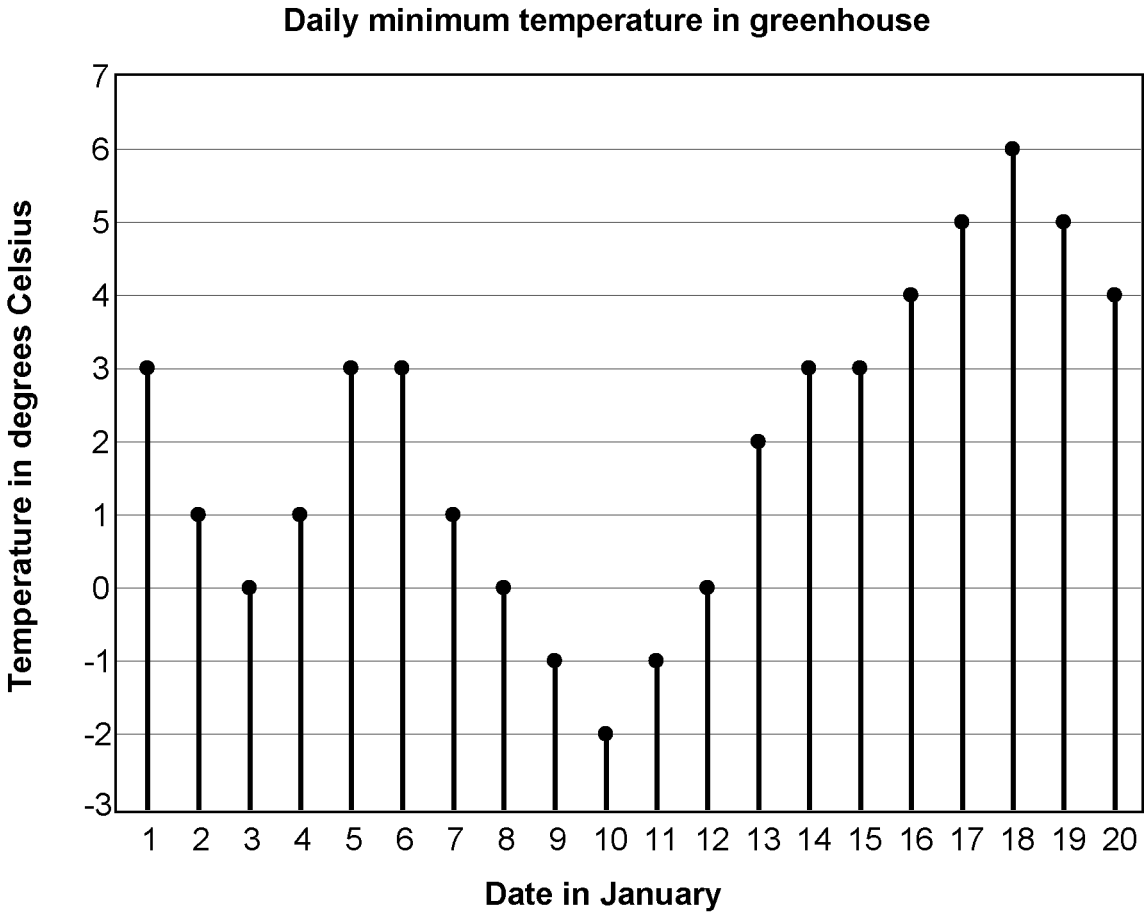
Temperature at present time

Maximum temperature

What is the difference between the maximum and minimum temperatures recorded?

A 21.5°C
B 22.5°C
C 23.0°C
D 24.0°C

36 The chart shows the minimum temperature in the greenhouse each day for 20 days in January.



What is the mode of the temperatures recorded on the chart?

A 3°C
B 5°C
C 6°C
D 8°C

37 One week in February, the temperature was 6°C on Monday and -2°C on Friday.

On Friday it was

A 8 degrees colder than on Monday
B 4 degrees colder than on Monday
C 4 degrees warmer than on Monday
D 8 degrees warmer than on Monday

38 The man makes his own compost by mixing granules, sand and peat together in the ratio

granules : sand : peat = 2 : 3 : 5

What volume of granules does he use to make 36 litres of compost?

A 18 litres
B 9 litres
C 7.2 litres
D 3.6 litres

39 The man plans to fill seed trays and plant pots with the compost.
He decides to fill 30 seed trays.
Each tray takes 0.9 litres of compost.

How much of the 36 litres of compost will he have left after filling these trays?

A 9.0 litres
B 11.0 litres
C 19.0 litres
D 33.3 litres

40 The man plants the 30 trays with 24 seeds in each tray.

He makes a tally chart of the number of plants that grow in each tray.

Number of plants that grow in each tray	Tally
0-4	III
5-9	IIII
10-14	𝍸
15-19	𝍸 𝍸
20-24	𝍸 III

In how many of the trays do more than 14 plants grow?

A 10
B 15
C 18
D 23

End of test

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