



# 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**

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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

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

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#### INSTRUCTIONS TO CENTRES

- This paper must not be photocopied

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Questions 1 to 7 are about a new garden pond in a woman's garden.

- 1 The woman hires a mini-digger.  
This table shows the prices

Mini-digger hire prices				
	1 day	2 days	Weekend (Sat and Sun)	1 week
Price without VAT	£140.00	£220.00	£160.00	£280.00
Price with VAT	£164.50	£258.50	£188.00	£329.00
Delivery without VAT	£8.00			
Collection without VAT	£8.00			
Delivery with VAT	£9.40			
Collection with VAT	£9.40			

The woman hires the mini-digger for Thursday and Friday.

What is the price for the hire including delivery, collection and VAT?

- A £206.80
- B £236.00
- C £267.90
- D £277.30

- 2 The woman employs a workman to help her with the pond.

The workman's rate is

- £12.00 per hour during the week
- £14.50 per hour at the weekend

The workman works for a total of 14 hours on Thursday and Friday.  
On Saturday he works from 8am until 12 noon.

How much does the workman earn?

- A £216.00
- B £224.50
- C £226.00
- D £240.50

3

The woman calculates the length of pond liner that she needs using this formula

$$N = L + 2D + 2$$

where **N** is the length of pond liner in metres  
**L** is the length of pond in metres  
**D** is the depth of pond in metres

The length of the pond is 3 metres and the depth is 0.9 metres.

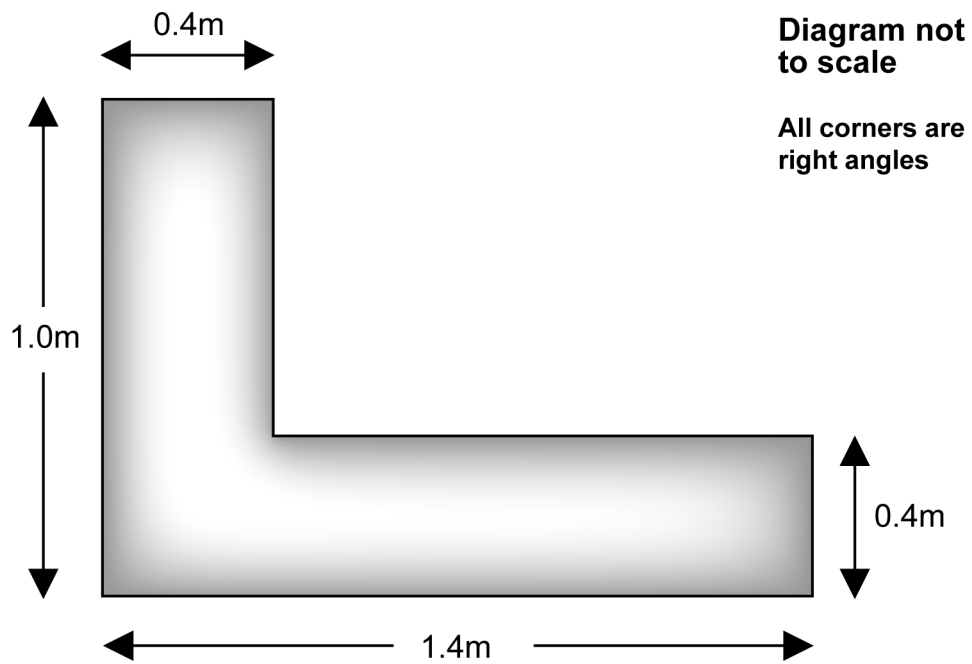
The length of liner that she needs is

- A 6.5m
- B 6.8m
- C 7.9m
- D 8.8m

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4

The woman designs a wooden seat to fit around one corner of the pond. The diagram shows the plan of the seat.



What is the area of the seat?

- A  $0.80\text{m}^2$
- B  $0.96\text{m}^2$
- C  $3.20\text{m}^2$
- D  $4.80\text{m}^2$

Questions 5 and 6 use the following information.

The area of the surface of the pond is 7.2 square metres.

- 5 The woman wants to buy some small goldfish for the pond. She finds the following information on a website.

To stock a new pond with small goldfish, start with one fish for each 0.18 square metre of the pond surface

She works out that she needs 40 goldfish for this size of pond.

Which calculation checks the number of fish?

- A  $0.18 \times 7.2 = \text{number of fish}$
- B  $0.18 \div 7.2 = \text{number of fish}$
- C  $7.2 \times 0.18 = \text{number of fish}$
- D  $7.2 \div 0.18 = \text{number of fish}$

- 6 She also wants to buy some water snails for the pond. The shopkeeper says that she needs one snail for every 2 square feet of pond surface.

1 square metre is approximately 10 square feet

According to the shopkeeper, how many snails does she need?

- A 3
- B 9
- C 36
- D 144

7

To choose a suitable water pump, the woman estimates the volume of the pond.

She uses the following approximate measurements

- length = 3 metres
- width = 2.5 metres
- depth = 1 metre

Her estimate for the volume of the pond is

- A  $6.5\text{m}^3$
- B  $7.5\text{m}^3$
- C  $8.5\text{m}^3$
- D  $13.0\text{m}^3$

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Questions 8 to 15 are about a man planning a holiday in a camper van.

- 8 The man intends to hire a camper van.  
The table shows the daily rates and possible extras.

Camper van hire rates			
	LOW SEASON	MID SEASON	HIGH SEASON
Daily rate	£49	£65	£85
Extras	Colour TV Cycle	£18 per week £10 per week	
Add 17.5% VAT to all hire prices			

Which calculation shows the cost, in pounds, of hiring a camper van and colour TV for 14 days in mid season, including VAT?

- A  $(65 \times 14 + 18 \times 2) + \frac{17.5}{100}$
- B  $(65 \times 14 + 18 \times 2) + \frac{100}{17.5}$
- C  $(65 \times 14 + 18 \times 2) + \frac{100}{17.5} \times (65 \times 14 + 18 \times 2)$
- D  $(65 \times 14 + 18 \times 2) + \frac{17.5}{100} \times (65 \times 14 + 18 \times 2)$

- 9 The man plans to drive the camper van approximately 1160 miles.  
The vehicle travels approximately 5 miles on one litre of fuel.  
Fuel costs 91.9p per litre.

He estimates the cost of fuel for the holiday.

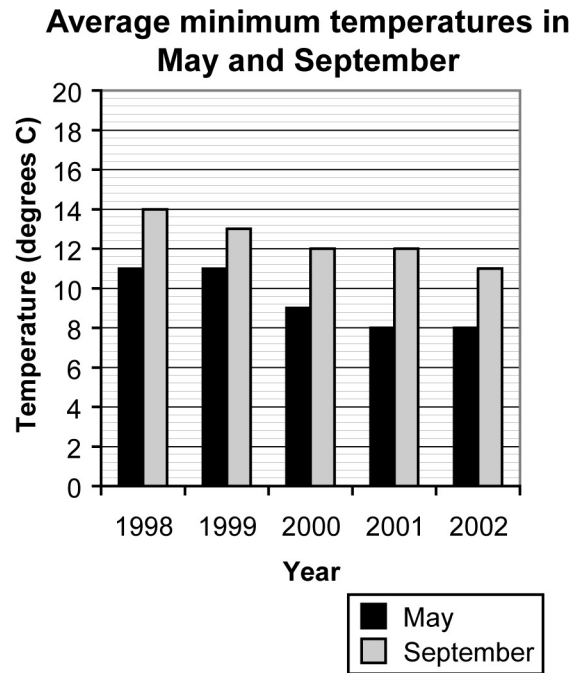
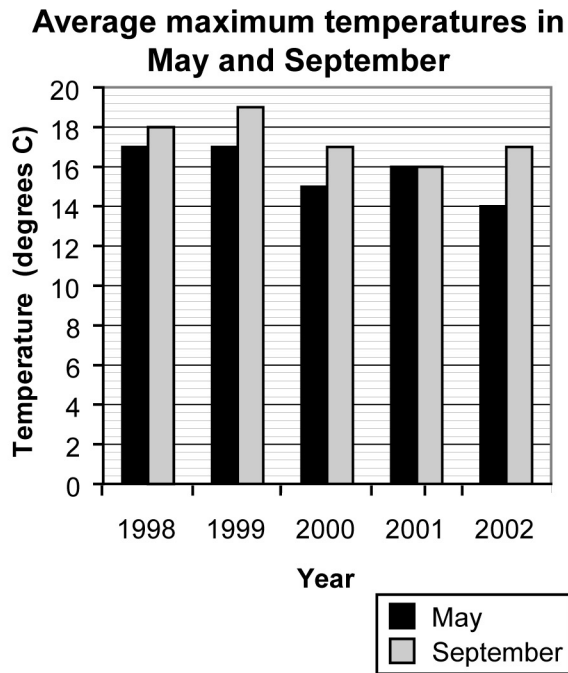
He rounds the distance travelled to the nearest 100 miles and the cost of fuel per litre to the nearest 10p.

His estimate for the cost of fuel is

- A £180
- B £198
- C £216
- D £220



- 10 The man looks at some weather data to help him decide whether to take his holiday in spring or in autumn. He compares the temperatures in May and September over five years.



Three of the statements below are true.

Which statement is **not true**?

- A The lowest average minimum temperature shown is in May.
- B The highest average maximum temperature shown is in September.
- C The average minimum temperature in May is lower than in September in all five years.
- D The average maximum temperature in May is lower than in September in all five years.

**11**

The man also looks at rainfall data for five years in the holiday area.  
This table shows the data

	Total rainfall for the month (mm)	
	May	September
1998	41	32
1999	66	72
2000	73	158
2001	28	18
2002	102	20

What is the difference between the mean rainfall in May and the mean rainfall in September?

- A 2mm
- B 10mm
- C 34mm
- D 85mm

12 The man chooses to stay at a caravan site.

The charge is

- £109.20 for **members** of a caravan club
- £124.65 for **non-members**

He is a member.

He estimates the fraction of the charge for **non-members** that he can save.

Which of the following is the most accurate estimate?

- A  $\frac{1}{5}$
- B  $\frac{1}{6}$
- C  $\frac{1}{8}$
- D  $\frac{1}{12}$

13 The man uses his map to find the distance from the first caravan site to the next one.

The scale of his map is 1 : 200 000

The distance on his map is approximately 25 centimetres.

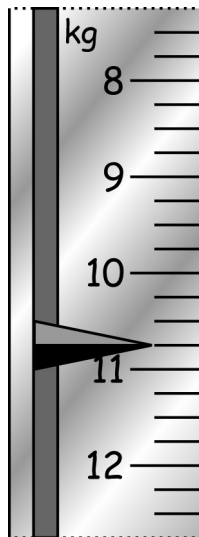
The actual distance on the ground is approximately

- A 13km
- B 50km
- C 80km
- D 125km

14

The man needs a cylinder of gas for cooking in the camper van. He visits a camping shop and learns how to check the amount of gas left in a gas cylinder.

The pointer on the diagram shows how much the cylinder **and** the gas it contains weigh.



The empty cylinder weighs 9.5 kilograms.

How much does the gas in the cylinder weigh?

- A 1.25kg
- B 1.40kg
- C 1.50kg
- D 1.75kg

**Please go on to the next page**

Questions 15 to 20 are about making bread.

A woman wants to buy a bread-making machine.  
She chooses a machine from this list

	Colour	Number of loaf sizes	Rapid bake programme	Viewing window	Price (£)
<b>Breville BR1</b>	white	3	no	yes	49.99
<b>Breville BR7</b>	white	3	yes	yes	49.99
<b>Breville BR8L</b>	silver	3	yes	yes	59.99
<b>Cookworks</b>	white	1	no	yes	24.99
<b>Hinari Homebaker</b>	white	2	yes	yes	39.99
<b>Kenwood BM200</b>	white	1	yes	yes	46.00
<b>Kenwood BM258</b>	silver	9	yes	yes	88.99
<b>Morphy Richards 48261</b>	silver	4	yes	yes	54.99
<b>Panasonic SD253</b>	white	3	yes	no	76.99
<b>Russell Hobbs 4461</b>	white	3	yes	yes	64.99

**15** What is the range of prices of these machines?

- A £15.00
- B £24.99
- C £49.99
- D £64.00

**16** The woman wants a white machine which can bake at least 3 sizes of loaf, has a rapid bake programme and a viewing window.

How many machines meet all her requirements?

- A 2
- B 3
- C 4
- D 5

- 17 The woman buys a bread-making machine.  
The instructions give weights in grams and kilograms.  
She has an old recipe for a  $1\frac{3}{4}$  pound loaf.  
She wants to know the equivalent weight in grams.

1 kilogram = 2.2 pounds

What is  $1\frac{3}{4}$  pounds to the nearest 100 grams?

- A 100g
- B 800g
- C 1300g
- D 3900g

- 18 A timer on the machine shows how much time **remains** until the loaf is ready.  
At quarter to eight in the morning the timer shows

**Bread ready in**  
hours : minutes  
2:55

At what time will the loaf be ready?

- A 10:00
- B 10:30
- C 10:40
- D 10:50

19

A recipe uses 320 millilitres of water.  
The woman has a 250-millilitre measuring beaker.  
She uses the beaker twice.  
The diagrams show different combinations of measurements.

Diagram a

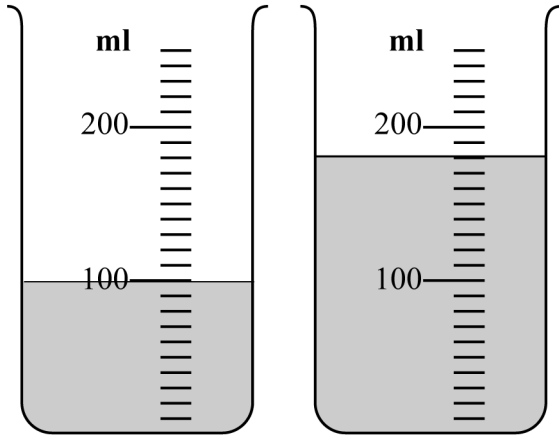


Diagram b

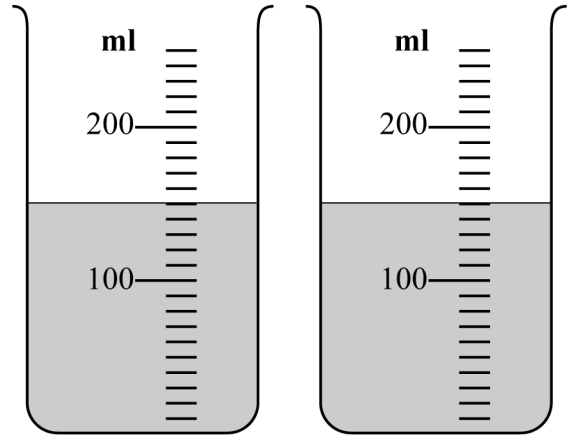


Diagram c

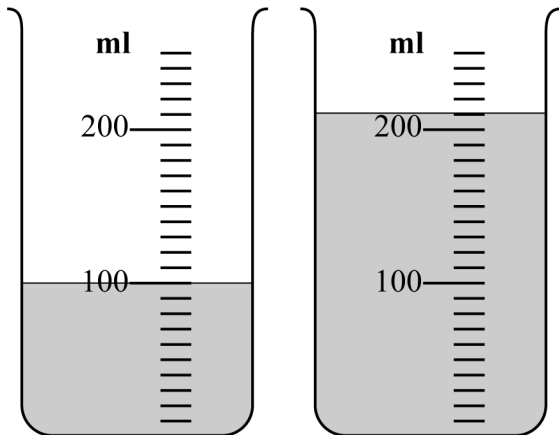
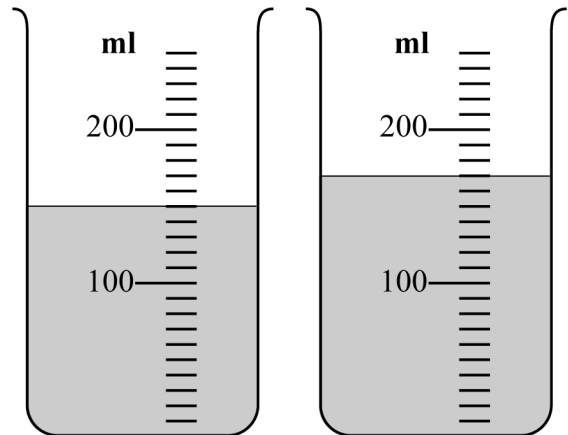


Diagram d



Which diagram shows two measurements that add up to a total of 320ml?

- A Diagram a
- B Diagram b
- C Diagram c
- D Diagram d



- 20** The woman works out that she saves 15p on a loaf that she makes in the bread-making machine.  
The shop price for a similar loaf is 75p.

What is 15p as a percentage of 75p?

- A** 5%
- B** 11%
- C** 15%
- D** 20%

**Please go on to the next page**

Questions 21 to 27 are about an artist's exhibition of his work.

- 21 The artist plans to have 60 paintings in the exhibition. He knows from previous exhibitions that he is likely to sell paintings in the ratio

landscape : portrait : still life = 12 : 3 : 5
--

He selects paintings for the exhibition in the same ratio.

The number of still life paintings he selects is

- A 12
- B 15
- C 20
- D 45

- 22 The artist uses three types of frame for his small pictures. This table shows the prices of the frames he uses

Picture frame prices			
Type of frame	Hardwood	Pine	Metal
Price of frame	£35	£26	£22
10% off all orders over £300			

He places an order for 8 hardwood and 10 pine frames.

What is the total price of the order?

- A £396
- B £450
- C £486
- D £494

**23** The artist advertises his exhibition in a regional newspaper.  
The newspaper sells approximately 370 thousand copies of each issue.  
The number of people who read the paper is about  $2\frac{1}{4}$  times the sales figure.  
What is  $2\frac{1}{4}$  times 370 thousand?

- A 83 250
- B 832 500
- C 8 325 000
- D 83 250 000

**24** The artist offers a 15% discount to anyone who buys more than one painting.  
What is 15% as a fraction?

- A  $\frac{1}{5}$
- B  $\frac{3}{20}$
- C  $\frac{1}{7}$
- D  $\frac{1}{15}$

**25** During the exhibition the artist pays his takings into his bank account each day.  
At the start of the exhibition his bank balance is -£285  
On the first day he pays £3 050 into his account.

What is his balance after this payment?

- A -£3 335
- B -£2 765
- C £2 765
- D £3 335

- 26 After the exhibition the artist compares the number of paintings he sold each day this year with his exhibition sales last year.

	Number of paintings sold	
	Last year	This year
Sunday	4	6
Monday	6	4
Tuesday	6	4
Wednesday	7	3
Thursday	5	3
Friday	6	3
Saturday	12	17

What is the difference between the modal number of paintings sold per day last year and this year?

- A 2
- B 3
- C 4
- D 5

- 27 A reporter writes an article for a marketing magazine about the exhibition. He shows the sales of different types of painting as a pie chart. The artist sells 40 paintings. 5 of the paintings he sells are portraits.

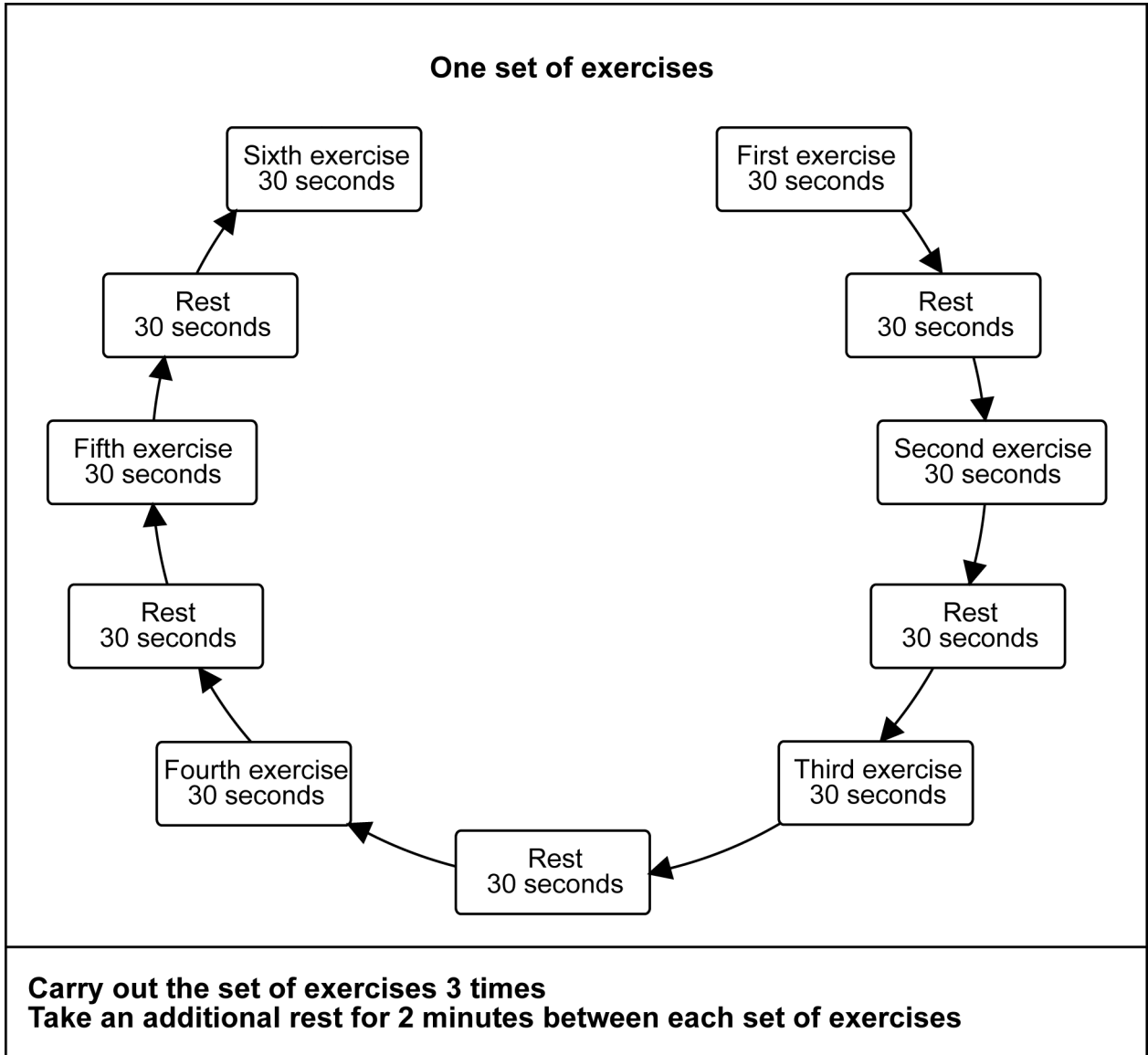
The angle for the portrait sector is

- A 5 degrees
- B 13 degrees
- C 45 degrees
- D 72 degrees

**Please go on to the next page**

Questions 28 to 34 are about a female athlete who competes in the long jump.

28 The athlete's training programme is organised into sets of six exercises. The diagram below shows her daily exercise programme.



How long does her whole daily exercise programme take?

- A 5 minutes 30 seconds
- B 16 minutes 30 seconds
- C 20 minutes 30 seconds
- D 22 minutes 30 seconds

- 29 The athlete uses a formula to help improve her jumping technique.

$$L = 0.99S - 2.81$$

where **L** is the expected length of jump in metres  
**S** is the speed at take-off in metres per second

The athlete works out the expected length of jump for a speed at take-off of 8 metres per second.

What is the expected length of jump?

- A 5.11m
- B 5.14m
- C 6.18m
- D 7.17m

- 30 The athlete compares her best jump to her mother's personal best of 17 feet 6 inches.

She uses the following information to work out her mother's personal best in metres.

$$\begin{aligned} 1 \text{ foot} &= 0.3 \text{ metres} \\ 12 \text{ inches} &= 1 \text{ foot} \end{aligned}$$

Using this information, 17 feet 6 inches is the same as

- A 5.25m
- B 5.60m
- C 5.70m
- D 6.90m

Questions 31 and 32 use this information.

The athlete compares her jumps in a competition in 2005 with her jumps for the same competition in 2004.

Length of competition jumps in metres						
2004	5.35	5.51	5.57	5.47	5.51	5.41
2005	5.72	5.69	5.75	5.77	5.69	5.70

**31** What is the difference between the median length of her competition jumps in 2005 and in 2004?

- A 0.18m
- B 0.22m
- C 0.24m
- D 0.25m

**32** What is the range of the lengths of her competition jumps in 2005?

- A 0.02m
- B 0.08m
- C 5.69m
- D 5.77m

**33** The athlete keeps a record of the longest jump she makes each week in training or in competition.  
She wants to keep a chart or a graph on the wall that she can update each week to show her progress.

Which type of chart or graph is most appropriate?

- A a bar chart
- B a pictogram
- C a pie chart
- D a scatter graph



- 34** At the end of the season the athlete compares her personal best with the women's long jump world record.  
Her personal best is 5.98 metres.  
The women's world record is 7.52m.

Which is the closest estimate of her personal best as a percentage of the world record?

- A 63%
- B 71%
- C 80%
- D 86%

**Please go on to the next page**

Questions 35 to 40 are about a rock festival.

A man organises a village rock festival.

**35** The man hires a marquee for the main concerts.  
He makes a scale drawing of the festival field.  
The scale of his drawing is 1 : 250  
The actual length of the marquee is 24 metres.

What is the length of the marquee on the plan?

- A 9.6cm
- B 10.4cm
- C 60cm
- D 96cm

**36** The man prepares a festival information booklet.  
He pays £38 for printing.

The money he receives comes from

- 1 full page advertisement at £20
- 8 half page advertisements at £12 each  
and the sales of booklets.

He expects to sell 500 booklets at 75p each.

How much profit does he expect to make?

- A £443.00
- B £453.00
- C £461.25
- D £467.00

**37**

The man plans to use blocks to build one of the small stages.

Each block measures 60cm by 30cm and is 25cm in height.

The man wants the stage to measure 480cm by 180cm and be 50cm in height.

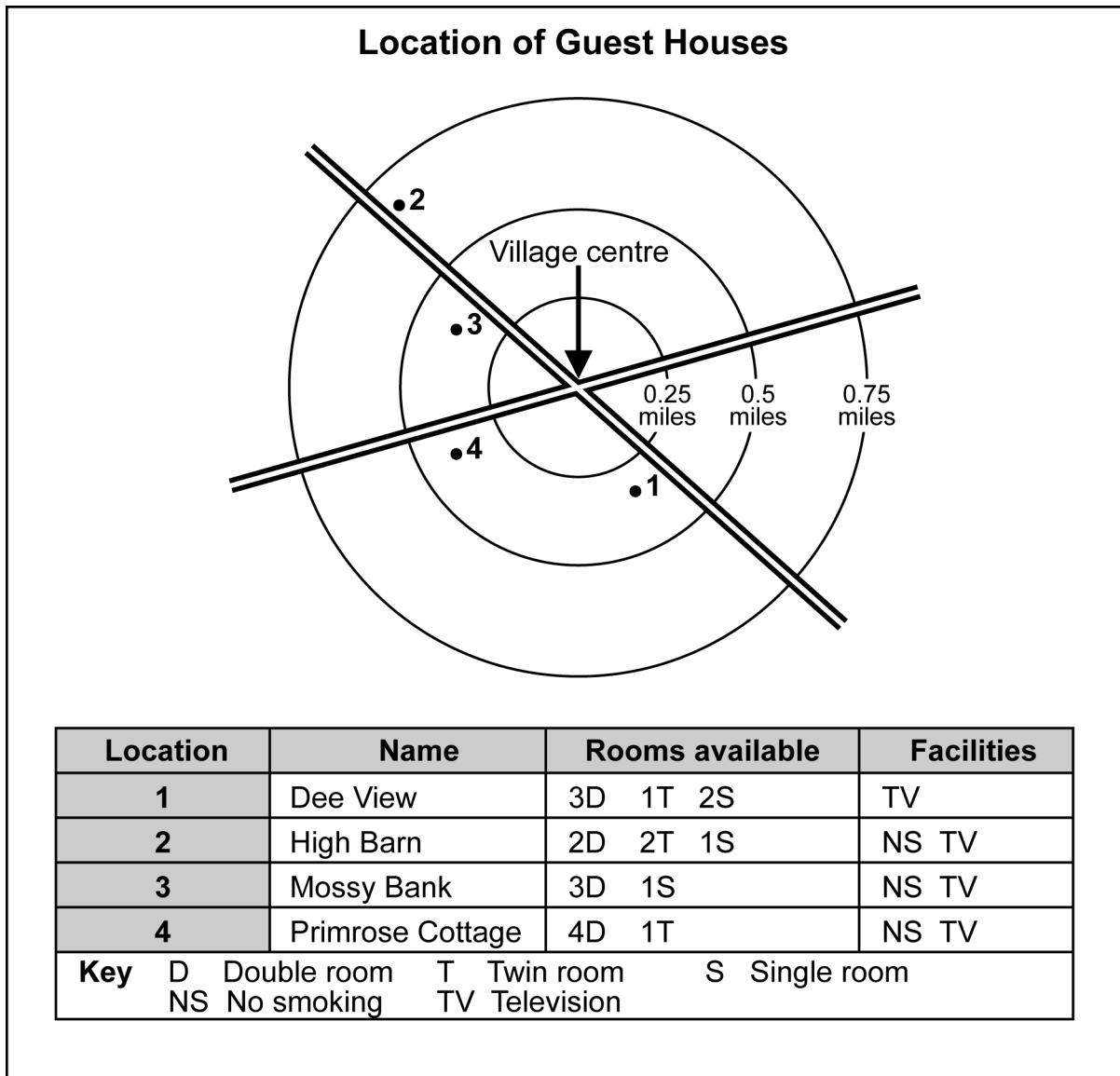
How many blocks does he need?

- A** 16
- B** 48
- C** 56
- D** 96

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38

The man enquires at the local tourist office about bed and breakfast accommodation for a group of musicians.  
He gets this information about guest house accommodation in the village



The musicians want two double and one twin room in the same guest house, not more than 0.5 miles from the village centre.  
They want non-smoking accommodation.

Which guest house meets their needs?

- A Dee View
- B High Barn
- C Mossy Bank
- D Primrose Cottage

**39**

A member of the organiser's committee will make hot dogs at the festival. He pays £80 to hire equipment, plus £16 to make each batch of 20 hot dogs. He will sell the hot dogs for £1.50 each.

Which calculation gives the number of hot dogs that he must sell to pay for the £80 to hire equipment?

A  $80 \div (1.5 - \frac{16}{20})$

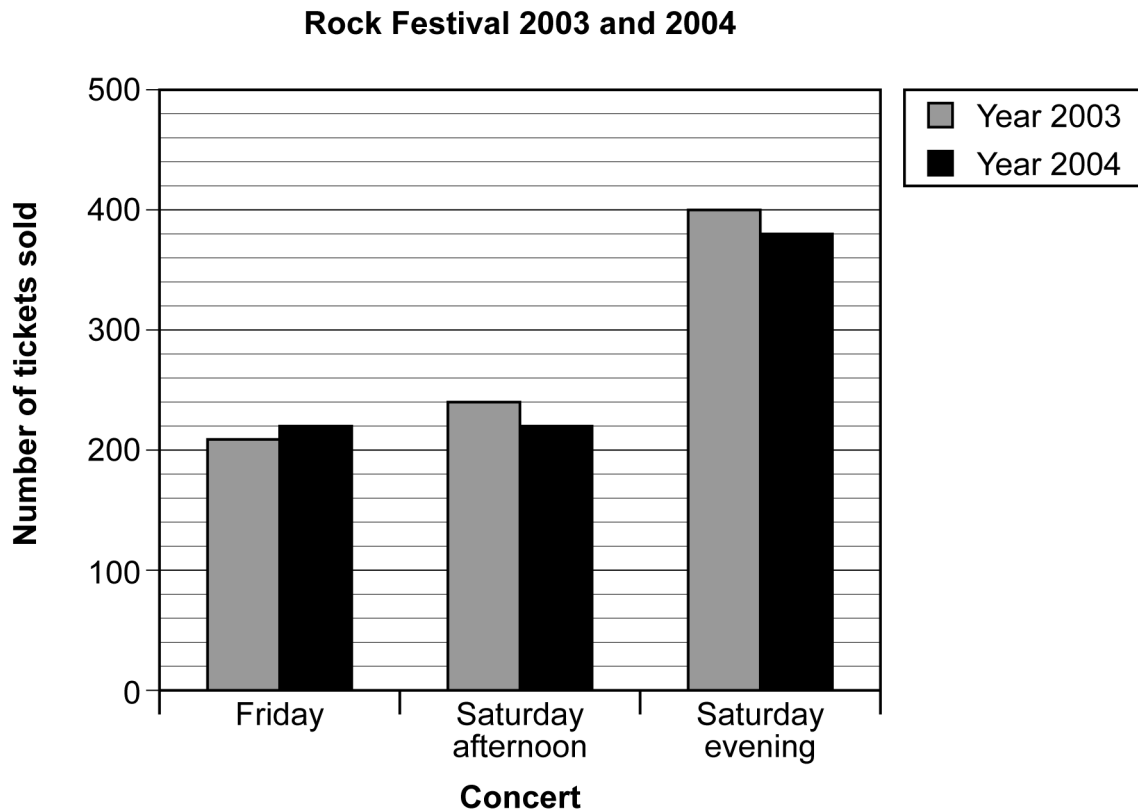
B  $80 \div (1.5 - \frac{20}{16})$

C  $(1.5 - \frac{16}{20}) \div 80$

D  $(1.5 - \frac{20}{16}) \div 80$

**Please go on to the next page**

40 The chart gives information about the sales of tickets in 2003 and 2004.



Each year the number of tickets available for Friday and Saturday afternoon is 250 for each concert.

The number of tickets available for Saturday evening is 400

How many unsold tickets were there in total in 2004?

- A 40
- B 50
- C 80
- D 100

**End of test**

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