Key skills application of number
Adult numeracy
Level 2

Test Paper A

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

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 AND 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

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

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Questions 1 to 3 are about temperatures in different parts of the world.

This table shows the temperatures for one day in January.

City	Max°C	Min°C
Athens	12	5
London	7	0
Moscow	-18	-23
New York	1	-6
Oslo	-10	-16
Paris	6	-2
Sydney	29	25

1 Which city had the lowest temperature?

A London
B New York
C Moscow
D Sydney

2 Which city had the greatest range of temperatures?

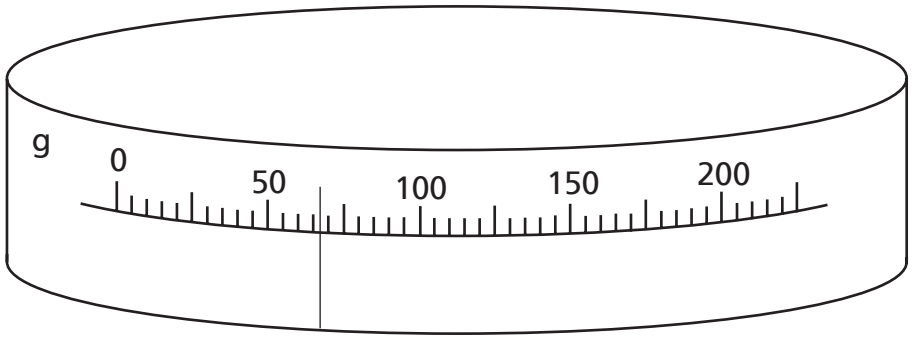
A Athens
B Moscow
C Oslo
D Paris

3 What is the difference between the maximum temperature in Sydney and the maximum temperature in Moscow?

A 11°C
B 37°C
C 46°C
D 47°C

4 A piece of cheese is weighed on kitchen scales.

The diagram shows the reading on the scale.



The weight of the cheese is

A 53.5g

B 57.0g

C 67.5g

D 72.5g

5 A paper cup which folds flat is designed using a pyramid with a square base.

Diagram of a Paper Cup

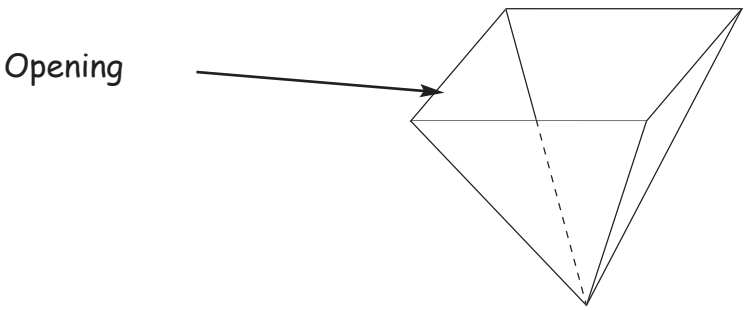


Diagram not to scale

The formula for the volume of the pyramid is:

$$\text{Volume} = \frac{1}{3} \times \text{area of opening} \times \text{depth}$$

The dimensions of the cup are:

Length of side of opening = 6cm

Depth = 10cm

What is the cup's volume?

A $80cm^3$

B $120cm^3$

C $240cm^3$

D $360cm^3$

6 Out of 800 shoppers, 300 shop more than three times a week.

What percentage of the shoppers shop more than three times a week?

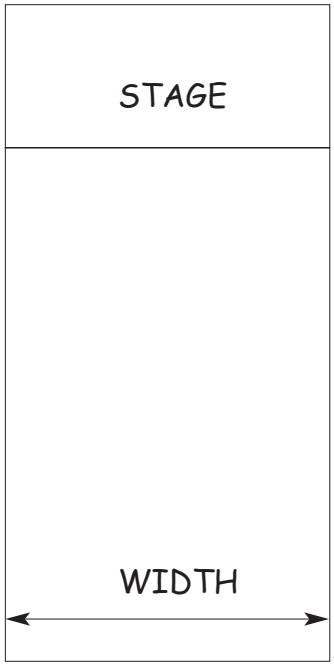
A 24%

B 26.5%

C 36%

D 37.5%

This plan shows a hall for the performance of a play.



Plan of the hall

Scale - 1cm represents 2m

7 The width of the hall is

A 2.15m

B 8.60m

C 21.50m

D 86.00m

8 A table is placed on the stage as part of the set.

The table measures 1.3m by 0.8m.

On the plan the size of the table drawn to scale should be

A 2.6mm by 1.6mm

B 6.5mm by 4mm

C 26mm by 16mm

D 65mm by 40mm

9 The cost of printing tickets is £4.85 for each 100 tickets plus a fixed charge of £21.50.

Which of these is the best estimate of the cost of printing 500 tickets?

A 5 + 5 + 20

B 20 + (5 x 5)

C (20 + 5) x 5

D 5 x 5 x 20

10 The instructions on the bottle of orange squash state 'mix one part squash with four parts water.'

How much squash is used to make 3 litres of orange drink?

A 60ml

B 75ml

C 600ml

D 750ml

11 This table summarises the income and costs of a performance of a play.

ITEM	£
Printing costs (tickets, posters, programmes)	95
Cost of hire of hall (rehearsals and performances)	125
Cost of hiring lights and costumes	310
Refreshment sales	42
Refreshment costs	18
Ticket sales	1840

Which of these calculations gives the overall **profit**?

A £(95 + 125 + 310 + 18 – 1 840 – 42)

B £(95 + 125 + 310 + 18) – (1 840 + 42)

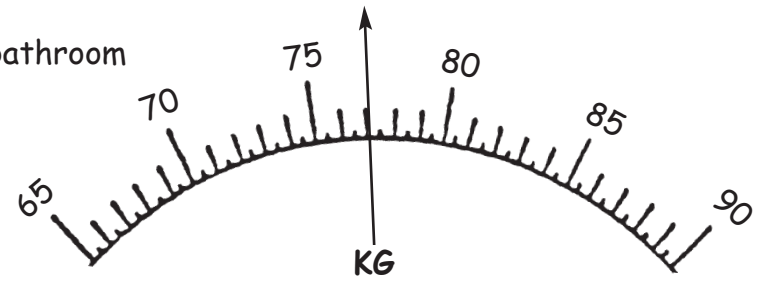
C £(1 840 + 42 – 95 + 125 + 310 + 18)

D £(1 840 + 42) – (95 + 125 + 310 + 18)

12 A dog owner needs to weigh his dog in order to calculate a dose of worming medicine.

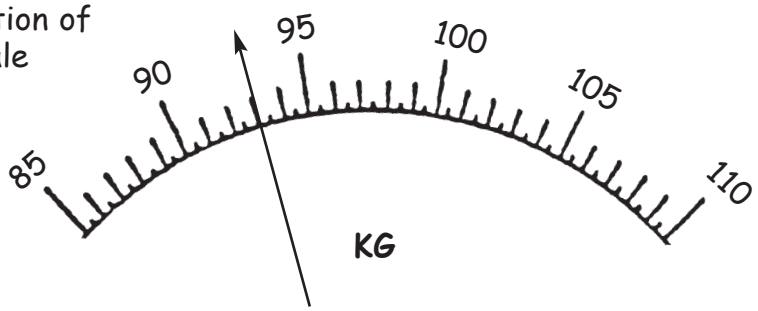
He first weighs himself on his bathroom scales.

Section of bathroom scales dial



He then weighs himself while holding the dog.

Another section of the same scale



How much does the dog weigh?

A 16kg

B 17kg

C 23kg

D 24kg

This table shows the minimum outside temperature in °C each day in February.

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1st week	2	4	5	5	1	-1	-3
2nd week	-4	-1	0	3	6	5	6
3rd week	3	2	-1	0	3	-2	0
4th week	0	4	7	8	3	-1	-2

13 The thermostat on a greenhouse heater switches the heater on when the temperature outside falls **below** 0°C.

What fraction of the number of days in February was the heater used?

A $\frac{1}{8}$

B $\frac{1}{7}$

C $\frac{8}{31}$

D $\frac{2}{7}$

14 What was the range of the outside temperatures recorded in February?

A -4°C

B 4°C

C 8°C

D 12°C

15 For what percentage of the days in February was the outside temperature at least 5°C?

A 70%

B 40%

C 25%

D 7%

Questions 16 and 17 are about the amount of petrol in the tank of a car.

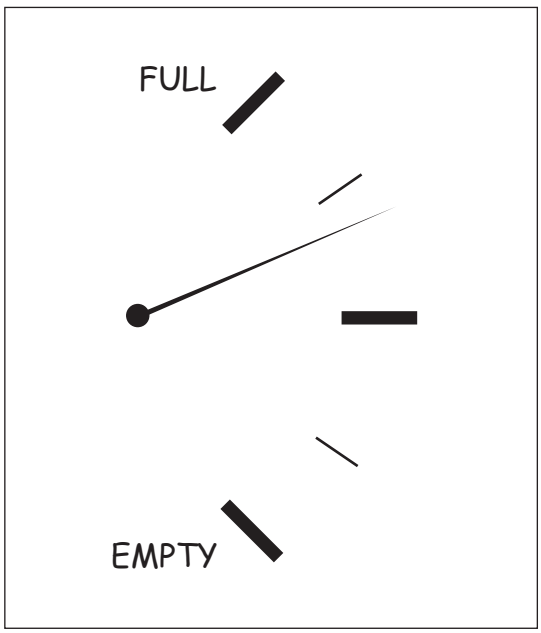
The tank of the car holds 12 gallons of petrol.

16 There are 4.55 litres in one gallon.

How many litres does the tank hold, to the nearest litre?

A 2 litres
B 3 litres
C 52 litres
D 55 litres

17 This diagram shows the reading on the petrol gauge.



How much fuel is left, to the nearest gallon?

A 7 gallons
B 8 gallons
C 9 gallons
D 10 gallons

18 There are 500 runners in a marathon race.

Their running times vary.

The mean running time is 4 hours exactly.

Which of the following **must** be true?

A Half of the runners take more than 4 hours

B The total time taken is 2 000 hours

C Most people take 4 hours

D Everyone takes 4 hours

Please go on to the next page

A window cleaner needs some leaflets to advertise his business.

He gets these costs from a printer:

	Cost
Basic setting-up charge	**£10**
First 500 leaflets	**£5 per 100 leaflets**
Extra leaflets above 500	**£2.50 per 100 leaflets**

19 Which formula shows the cost of printing 1 000 leaflets?

A cost in pounds = 10 + (2.5 x 10)

B cost in pounds = 10 + (2.5 x 5) + (5 x 5)

C cost in pounds = 10 + (5 x 10)

D cost in pounds = 10 + (7.5 x 10)

20 A window cleaner can afford to spend £30 on printing.

How many leaflets can he get for this?

A 400

B 600

C 700

D 800

A company wants to compare the wages of its male and female employees.
A manager gathers this data.

Male wages (£ per week)	Female wages (£ per week)
170, 180, 190, 190, 200, 210, 230, 230, 240, 260, 460, 500	160, 180, 190, 210, 210 220, 230, 240, 310, 340

21 What is the range of female wages?

A £180

B £210

C £229

D £230

22 The manager works out that the mean wage for males is £255.

How much less than this is the mean wage for females?

A £26

B £36

C £40

D £45

A child makes a model of a boat.

23 The instructions say the length of the real boat is 22 metres.

The scale of the model is 1 : 40.

What is the length of the model boat?

A 5.5cm

B 8.8cm

C 55.0cm

D 88.0cm

24 The child sails his model boat on a circular boating lake.

The diagram shows the plan view of the lake.

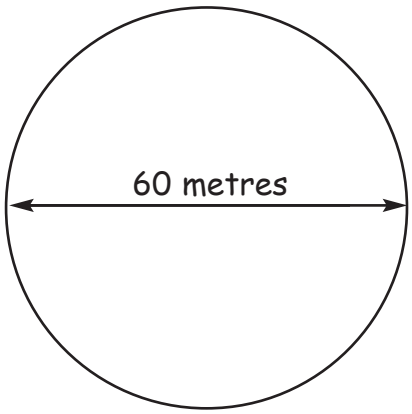


Diagram not to scale

Distance around a circle = πd
where d is the diameter.
The value of π is about 3

One afternoon, the child walks eight times around the edge of the lake.

How far does he walk?

A 180m

B 720m

C 1 440m

D 21 600m

25 A Sunday newspaper offers advertising space for house sales at a reduced rate.

The normal price for a house sales advert is £84.

The reduced price is £28, giving a saving of £56.

Which of these calculations gives the **saving** as a percentage of the normal price?

A $\frac{84}{28} \times 100\%$

B $\frac{84}{56} \times 100\%$

C $\frac{28}{84} \times 100\%$

D $\frac{56}{84} \times 100\%$

26 A student carried out a survey in a town centre car park.

During the survey 251 cars entered the car park.

Between 8am and 2pm, 148 cars entered the car park.

The fraction of cars in the survey which entered the car park between 8am and 2pm is about:

A $\frac{3}{8}$

B $\frac{2}{5}$

C $\frac{3}{5}$

D $\frac{5}{8}$

27 An artist makes a photograph frame from two identical L-shaped pieces of wood. The diagram shows the measurements.

Photographic frame

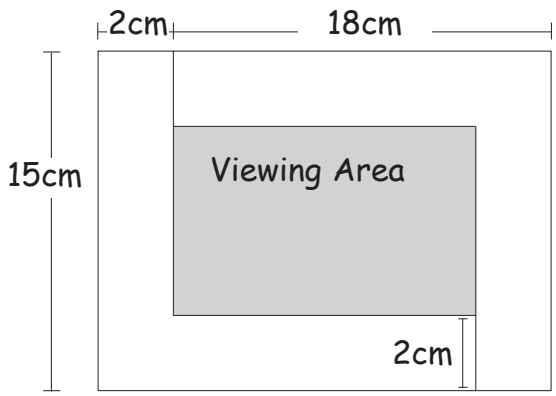


Diagram not to scale

The artist wants to check the size of the viewing area in the frame.

Which calculation checks the viewing area in cm^2?

A 16 x 11
B 16 x 13
C 18 x 13
D 20 x 15

28 A student heats up a pan of water.

He measures the temperature of the water every 10 seconds.

His results are shown in the table.

Time (secs)	0	10	20	30	40	50	60	70	80	90	100	110	120
Temperature °C	40	53	64	72	78	83	88	91	94	96	98	99	100

What percentage of the total increase in temperature happens during the first half of the time taken to do the experiment?

A 48%
B 50%
C 80%
D 88%

Please go on to the next page

Anne goes to a slimming club. She weighs 12 stone.

29 The scales at the club measure weight in kilograms.

1 stone = approximately 6.3 kilograms.

What is Anne's approximate weight in kilograms?

A 18kg

B 19kg

C 72kg

D 76kg

30 Anne's target weight is $10\frac{1}{2}$ stone.

What fraction of her current weight does she aim to lose?

A $\frac{1}{12}$

B $\frac{1}{8}$

C $\frac{1}{6}$

D $\frac{1}{4}$

31 Anne is slimming. Her food intake should contain no more than 1 250 calories per day. The table shows the number of calories in different foods.

Food	Quantity	Calories
Banana	25g	20
Marmalade	25g	66
Muesli	25g	94
Toast	slice	55
Milk	100ml	47
Orange Juice	100ml	46
Tea (no milk or sugar)	any	0
Sugar	level teaspoon	17

For breakfast she has 50 grams of muesli, and a cup of tea.

She uses a total of 150ml of milk and 2 level teaspoons of sugar.

She wants to know what this is as a percentage of her maximum daily calorie intake.

Which of these calculations shows this?

A $\dfrac{(94\text{x}2) + (47\text{x}1.5) + (17\text{x}2)}{1\,250} \times 100$

B $\dfrac{1\,250}{(94\text{x}2) + (47\text{x}1.5) + (17\text{x}2)} \times 100$

C $\dfrac{94 + 47 + 17}{1\,250} \times 100$

D $\dfrac{1\,250}{94 + 47 + 17} \times 100$

32 Andrew needs to apply wood preservative to one side of his garden fence.

One tin of preservative covers 4 square metres with one coat.

The instructions state 2 coats must be applied.

The fence is 7.1m long and 1.8m high.

Which of these calculations is the most accurate estimate for the number of tins Andrew needs?

A $(2 + 7) \times 2 \div 4$

B $2 \times 2 \times 7 \div 4$

C $(2 + 7 + 2 + 7) \times 2 \div 4$

D $2 \times 7 \div 2 \times 4$

33 A man keeps fish in a tank.

The shape of the tank is a cuboid.

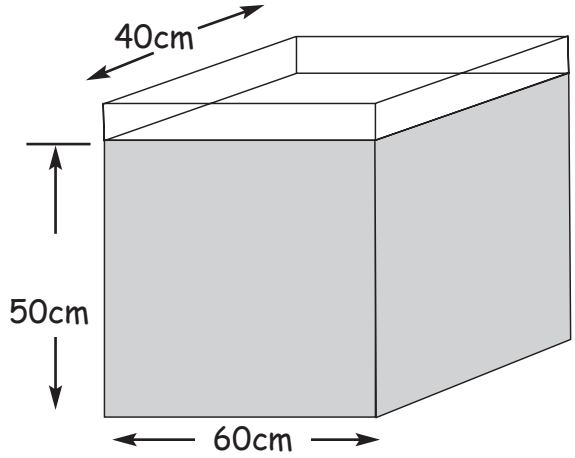


Diagram not to scale

After cleaning the tank he uses a 10 litre bucket to refill it to a depth of 50 centimetres.

What is the minimum number of times he empties the bucket into the tank?

(1 millilitre = 1 cubic centimetre)

A 12

B 15

C 120

D 150

34 At a fair, four friends have a go at a competition to estimate how full a bucket is.

Their estimates are $\frac{3}{4}$, $\frac{2}{3}$, 65% and 0.8

Which is the smallest of these estimates?

A $\frac{3}{4}$

B $\frac{2}{3}$

C 65%

D 0.8

35 A fishing club has four categories of membership. In 2001 the number of members in each category was

Membership category	Number
Full	360
Junior (under 18)	90
Senior (65 and over)	240
Honorary Life	30

Chart a

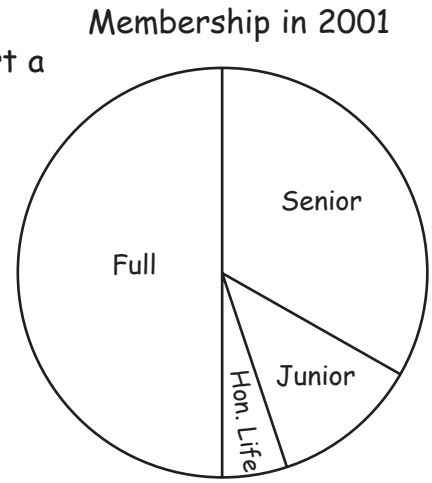


Chart b

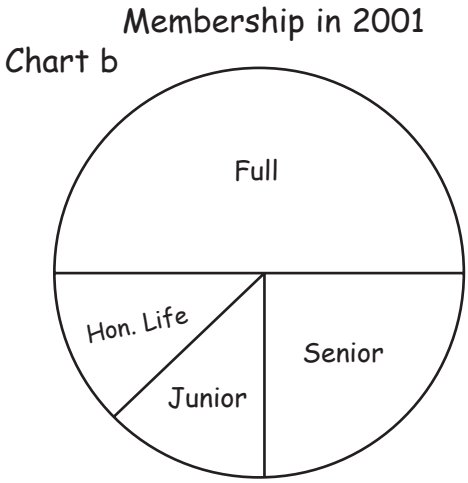


Chart c

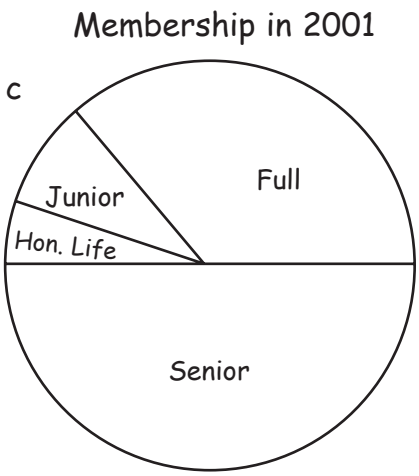
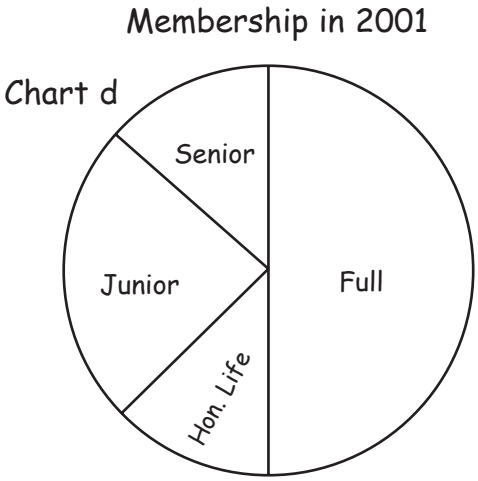


Chart d



Which of these charts shows this information?

A Chart a

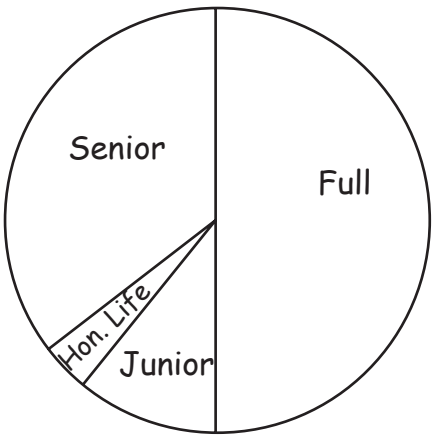
B Chart b

C Chart c

D Chart d

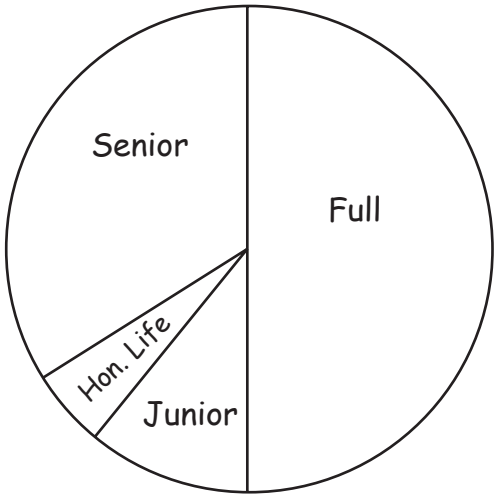
These charts show the membership of a fishing club for 1999 and 2000.

Membership in 1999



Total number of Members = 600

Membership in 2000



Total number of Members = 800

36 The number of Full members in 2000 compared with 1999

A stayed the same.

B increased by 100%.

C increased by 200.

D increased by a third.

37 On the chart for Membership in 2000, the angle representing Junior members is 45°.

The number of Junior members in 2000 was

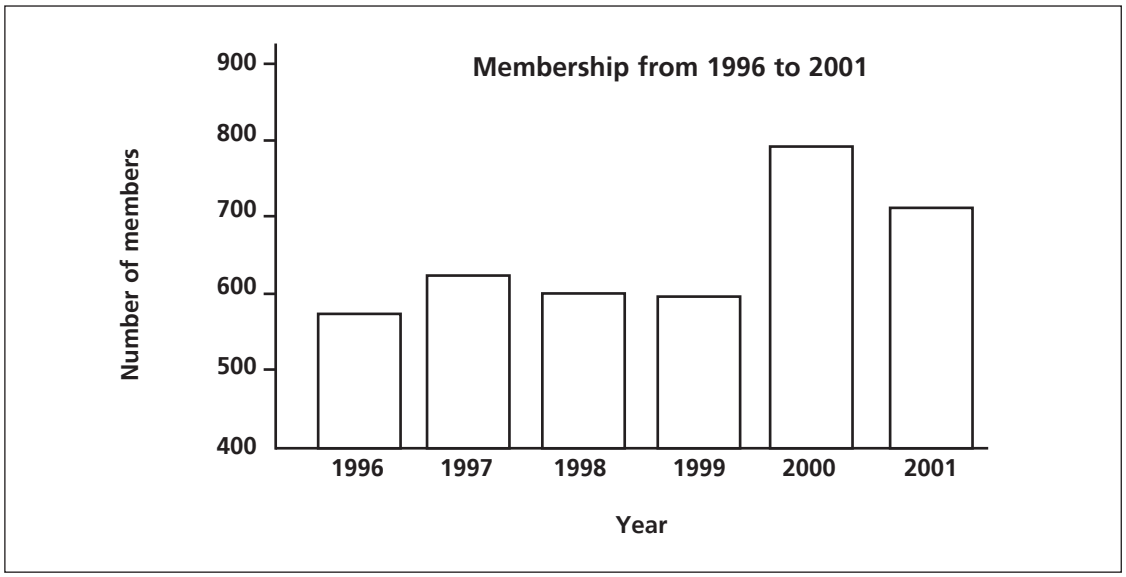
A 75

B 100

C 200

D 360

38 This chart shows the number of members in a fishing club over six years. A member looks at the chart. He says, 'The number of members in 2000 was double the number in 1999'. He is wrong.



Why is this chart misleading?

A The years on the horizontal axis do not increase evenly.
B The numbers on the vertical axis do not increase evenly.
C The bars are the wrong width.
D The vertical scale does not start at zero

39 Fred has been learning to fish for a year.

The heaviest fish he has caught weighs 2lbs.8oz.

What is the weight of this fish in kilograms?

(16oz=1lb. 1lb=0.454kg.)

A 0.908kg
B 1.135kg
C 1.589kg
D 2.497kg

40 A typist takes approximately 4 minutes to type 120 words.

At the same speed of typing, how long would it take to type 5 040 words?

A 42 minutes
B 2 hours 8 minutes
C 2 hours 48 minutes
D 8 hours

END OF TEST