



NCFE Level 1 Functional Skills Qualification in Mathematics (603/5055/6)

Paper number: Practice P001267
Section B: Calculator Test



Time allowed: 1 hour 30 minutes

Learner instructions

- Answer **all** questions.
- Read each question carefully.
- Write your answers in the spaces provided.
- Show your working, as marks may be awarded for working.
- State units in your answers, where appropriate.
- Check your work.

Learner information

- Section B contains **Activities 2, 3 and 4**.
- The maximum mark for this section is **45**.
- The marks available for **each** question are shown in brackets.

Resources

You will need a:

- pen, with black or blue ink
- pencil and eraser
- 30 cm ruler
- protractor
- calculator.

If extra pages are used, please make sure your name and centre name are on them and they are securely fastened to this booklet.

Please complete the details below clearly and in BLOCK CAPITALS.

Learner name _____

Centre name _____

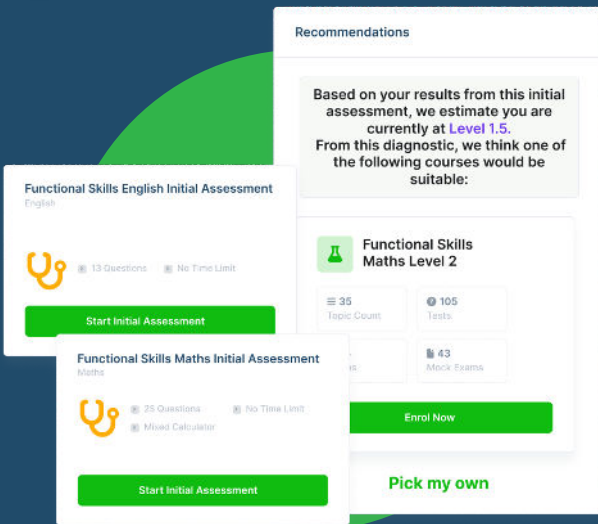
Learner number

Centre number

Do not turn over until the invigilator tells you to do so.

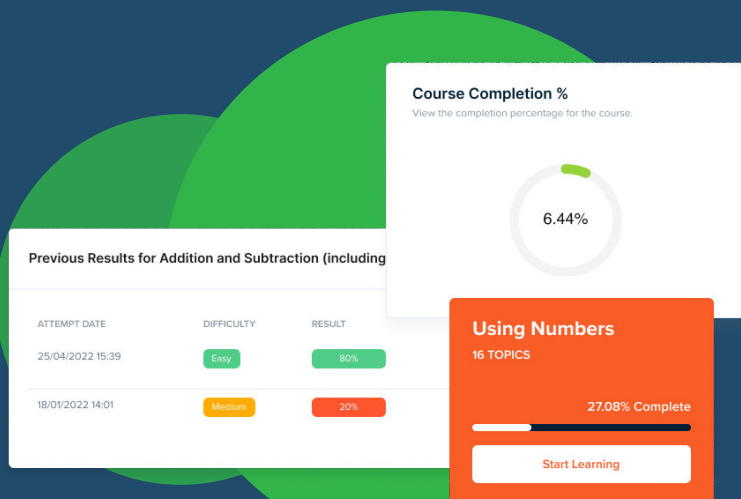
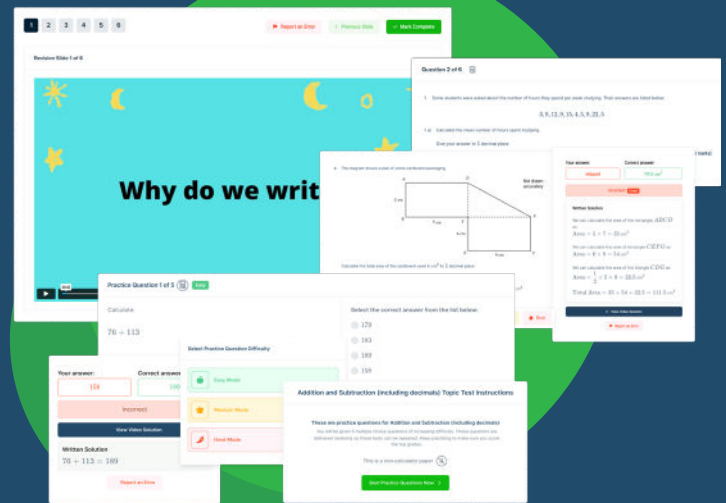


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Activity 2: Caring for reptiles

2 (a) Zac is doing an apprenticeship in Animal Care and Management.

He is working as an assistant at a reptile centre.

Zac learns about how to look after reptiles.

Habitat	Animal type	Maximum length in centimetres (cm)	Optimal temperature	Humidity
Water	Box terrapin	<u>15 cm</u>	20 °C to 25 °C	80% to 100%
Land	Garter snake	75 cm	22 °C to 27 °C	60% to 80%

What is the maximum length of a Box terrapin in millimetres (mm)?

[1 mark]

15cm = 150 mm

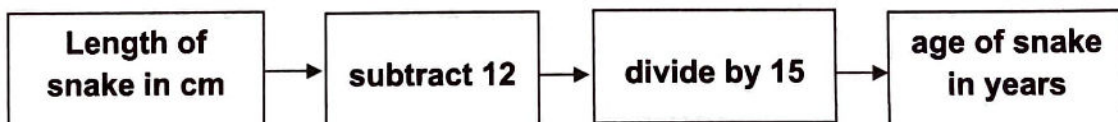
Your answer:

150

mm

Please turn over

2 (b) The age of a young Garter snake can be estimated using this rule:



An adult Garter snake is about 72 cm long.

What age is a Garter snake when its length is 72 cm?

[3 marks]

72 - 12 = 60

60 ÷ 15 = 4

4 years

Your answer:

4 years

2 (c) It is important that reptiles are given the correct diet.

The calcium : phosphorus weight ratio in their food should be close to 2 : 1

The table shows the weight in milligrams (mg) of calcium and phosphorus in one scoop of food.

		Calcium	Phosphorus
Food	Watermelon	<u>36</u> mg	<u>9</u> mg
	Cauliflower	<u>160</u> mg	<u>80</u> mg

Which food has the better calcium : phosphorus ratio for reptiles?
Show your working.

[2 marks]

$$\text{Watermelon} - 36 : 9 = 4 : 1$$

$$\text{Cauliflower} - 160 : 80 = 2 : 1$$

Cauliflower

Your answer:

Cauliflower

Please turn over

2 (d) A customer needs to buy a tank for his snake.

Zac has this information about the sizes of tanks:

Length of snake (to nearest cm)	Minimum floor area for one snake (cm ²)
0 to 30	300
31 to 40	400
41 to 50	600
51 to 75	1200
over 75	2500

The reptile centre sells these five sizes of tanks.

Size of tank	Length (cm)	Width (cm)	Price
Mini	18	11	£3.15
Small	23	15.5	£6.22
Medium	31	19.5	£9.95
Large	37	22	£13.99
Extra large	45	30	£18.99

Which is the cheapest tank the customer should buy for one snake which is 45 cm long? Show your working.

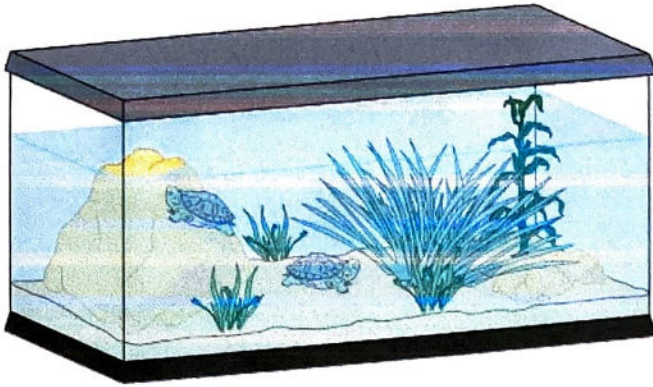
[3 marks]

Need 600cm².
 Mini: 18 x 11 = 198 cm²
 Small: 23 x 15.5 = 356.5 cm²
 Medium: 31 x 19.5 = 604.5 cm².
 604.5 > 600.
 So need Medium.

Your answer:

Medium

- 2 (e) Another customer already has a terrapin tank. She wants advice on how many terrapins to buy.



When her tank is filled, the water surface area is 6000 cm²

Terrapins need a water surface area of:

- 1900 cm² for two terrapins
- then an additional 300 cm² for each additional terrapin.

What is the maximum number of terrapins Zac should advise the customer to buy?

[3 marks]

$$6000 - 1900 = 4100$$

$$4100 \div 300 = 13.66\dots$$

$$13 + 2 = 15$$

Your answer:

15

terrapins

Please turn over

2 (f) At college, Zac learns about snakes.

He reads this data about the lengths of snakes found in one area:

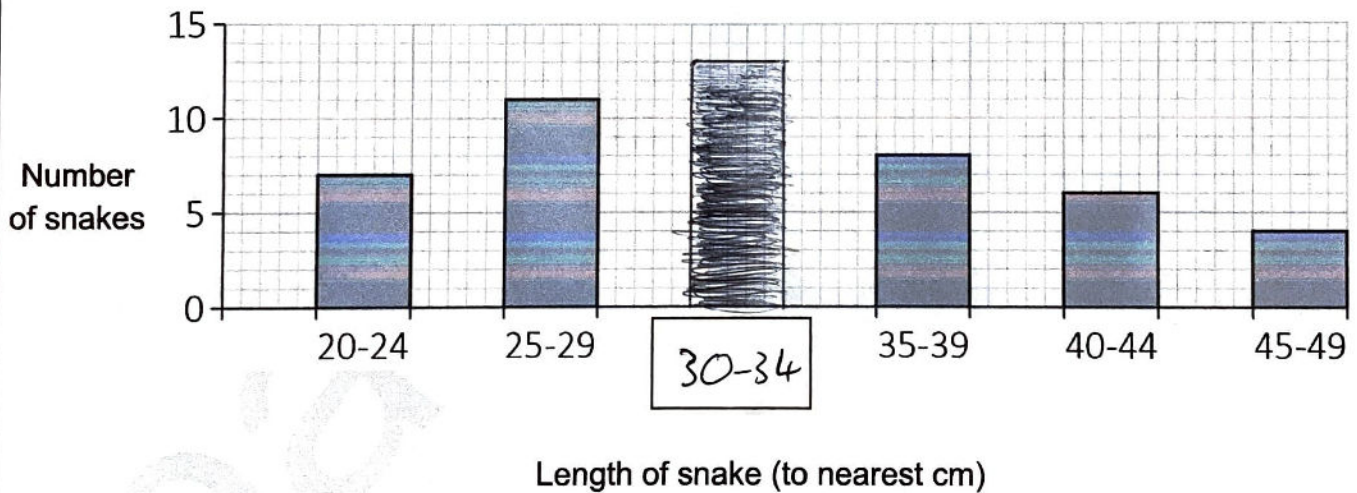
Length of snake (to nearest cm)	Number of snakes
20-24	7
25-29	11
30-34	13
35-39	8
40-44	6
45-49	4

The bar chart shows this data but one bar is incomplete.

Draw the bar to the correct height on the chart and label it.

[2 marks]

Lengths of snakes found in one area



2 (g) The class tutor has provided some snakes for the students to handle.

5 of the snakes are green and 4 are brown.

Zac is first to choose and picks a snake at random.

What is the probability that he picks a brown snake?

[1 mark]

$$\frac{4}{5+4} = \frac{4}{9}$$

Your answer:

$$\frac{4}{9}$$

[Total marks: 15]

Activity 3: Cycling trip

3 (a) Asha lives in Nottingham. She is planning a cycling trip in Holland.

Asha plans the trip in two stages:

- take the train from Nottingham to Harwich
- take the ferry from Harwich to the Hook of Holland.

This is part of the train timetable from Nottingham to Harwich:

Depart	From	To	Arrive
17:02	Nottingham (NOT)	> Harwich International (HPQ)	21:17
18:37	Nottingham (NOT)	> Harwich International (HPQ)	22:17
19:28	Nottingham (NOT)	> Harwich International (HPQ)	22:58
20:34	Nottingham (NOT)	> Harwich International (HPQ)	23:53

How many hours does the 19:28 train from Nottingham take to get to Harwich if it runs to time? Give your answer as a mixed number.

[2 marks]

Your answer:

$3 \frac{1}{2}$

hours

3 (b) The return train fare from Nottingham to Harwich is £158.80

Asha has a student railcard which gives her 30% off.

How much will Asha pay for her return ticket?

[2 marks]

$$£158.80 \times 0.7 = £111.16$$

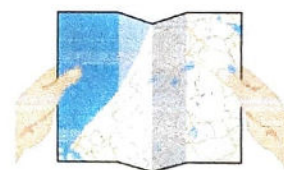
Your answer:

£ 111.16

3 (c) Asha plans to cycle from the Hook of Holland to Amsterdam.

Her map has a scale of 1 cm to 8 (kilometres) km

The straight line distance between the Hook of Holland and Amsterdam is 70 km



What is the measurement between these two places on Asha's map?
Give your answer in mm

[2 marks]

$$70 \div 8 = 8.75 \text{ cm} \\ = 87.5 \text{ mm}$$

Your answer:

87.5 mm

Please turn over

3 (d) Asha will spend two days in Amsterdam and then cycle back to catch the ferry at the Hook of Holland.

The road distance between two places is about 40% longer than the straight line distance.

Estimate the actual road distance Asha will cycle **in total**.
 Give your answer in km

[3 marks]

$$70 \times 1.4 \times 2 = 196 \text{ km}$$

Your answer:

196 km

3 (e) Asha needs to buy a pair of cycle bags for her trip.

She reads an article which says that, for a cycling holiday, the cycle bags need to have a capacity of at least 20 litres each.

1 litre is the same as 1000 cm³

Asha sees some cycle bags which each have these dimensions:

- height 42 cm
- width 32 cm
- depth 17 cm

The cycle bags are roughly cuboid in shape.

Are these cycle bags large enough?
Show your working.



[3 marks]

$$42 \times 32 \times 17 = 22848$$

$$22848 \div 1000 = 22.848 \text{ L} \\ > 20 \text{ L}$$

Your answer:

Yes .

Please turn over

3 (f) The empty cycle bags weigh 0.76 kg each.

Asha says, "Two of these cycle bags together will weigh less than 1.6 kg."

Is Asha correct? Explain your answer.

[1 mark]

$$0.76 \times 2 = 1.52 \text{ kg} < 1.6 \text{ kg}$$

Your answer:

Yes

3 (g) The cycle bags that Asha buys weigh 0.85 kg each.

Asha fills one bag with clothes.

The clothes weigh 473 grams (g).

How much does the cycle bag containing the clothes weigh?

[1 mark]

$$473 \text{ g} = 0.473 \text{ kg}$$

$$0.473 + 0.85 = 1.323 \text{ kg}$$

Your answer:

1.323 kg

3 (h) Asha's instructions say, "When you leave the ferry port, go east."

Asha is cycling north.

How many degrees clockwise does she need to turn to cycle east?

[1 mark]

Your answer:

90	degrees
----	----------------

[Total marks: 15]

Past paper

Activity 4: Sleeping rough

- 4 (a) Every year, local authorities in England estimate how many people are sleeping rough in their area.

The estimates for England over the last few years are shown in this table:

Year	Estimated number of people sleeping rough in England
2011	2181
2012	2309
2013	2414
2014	2744
2015	3569
2016	4134

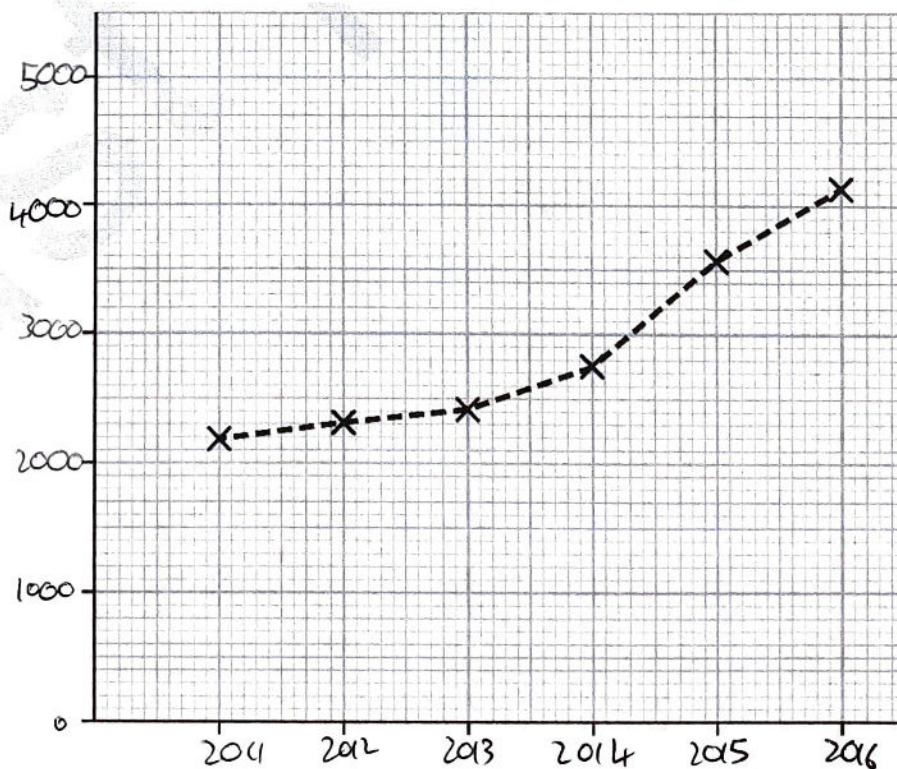
The data is represented in this line graph. The axes are incomplete.

Complete the line graph.

[3 marks]

Number of people sleeping rough in England

Estimated number
 of people sleeping
 rough in England



Year

- 4 (b) Between 2014 and 2017 the number of people sleeping rough increased by 75%

Write this percentage as a fraction in its simplest form.

[1 mark]

$$75\% = \frac{3}{4}$$

Your answer:

$$\frac{3}{4}$$

- 4 (c) Calculate 75% of 2744
Give your answer to the nearest hundred.

[2 marks]

$$2744 \times 0.75 = 2058$$

2100 to nearest hundred

Your answer:

2100

- 4 (d) A charity asks people to donate 40p a day to sponsor rooms for people sleeping rough.

The charity hopes to raise 1 million pounds a year through these donations.

How many people would have to donate 40p a day to raise at least £1 000 000 for the charity in a year?

Use the conversion: 365 days = 1 year

[3 marks]

$$40p = \text{£}0.40$$

$$\text{£}1\,000\,000 \div 365 \div 0.4 = 6850 \text{ people}$$

Your answer:

6850

- 4 (e)** A community group raises money to help people who sleep rough.

Volunteers pack shopping bags at a local supermarket and ask shoppers for donations.

The table shows the numbers of volunteers who packed bags on 32 Saturdays in 1 year.

4	5	2	4	6	5	5	4
2	2	1	5	5	3	4	3
3	4	2	2	5	2	1	0
3	4	4	4	3	1	1	5

Use the data to complete this frequency table.

[2 marks]

Number of volunteers	Frequency
0	1
1	4
2	6
3	5
4	8
5	7
6	1
Total	32

Please turn over

4 (f) Over these days the volunteers collected £6224

What was the mean amount of money collected each Saturday?

[2 marks]

$$£6224 \div 32 = £194.50$$

Your answer:

£ 194.50

4 (g) The amounts of money collected each Saturday had a range of £53.

The most money collected in a day was £220

What was the least amount of money collected in a day?

[1 mark]

$$£220 - £53 = £167$$

Your answer:

£ 167

4 (h) Abdhul is a member of the community group.

On a Saturday he either packs shopping bags or he takes part in another activity.

The table shows the probability of him taking part in each activity.

Activity	Probability
Bag-packing	0.35
Football	0.50
Computer games	0.11
Shopping	0.04

Which activity is Abdhul most likely to take part in?
Explain how you decide.

[1 mark]

Football because it is the biggest probability (0.5)

Your answer:

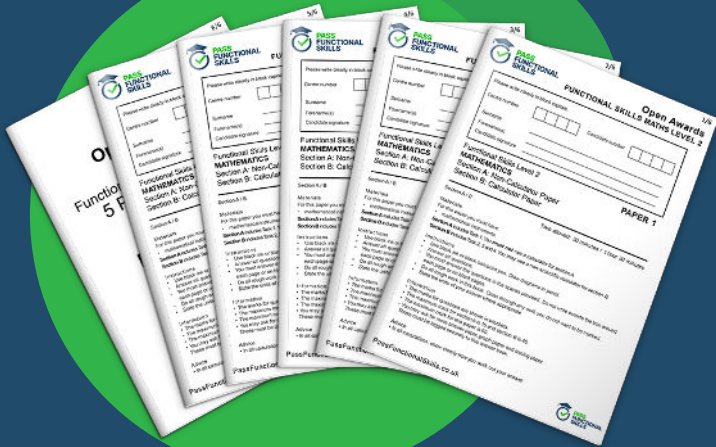
~~Shopping~~ Football

[Total marks: 15]

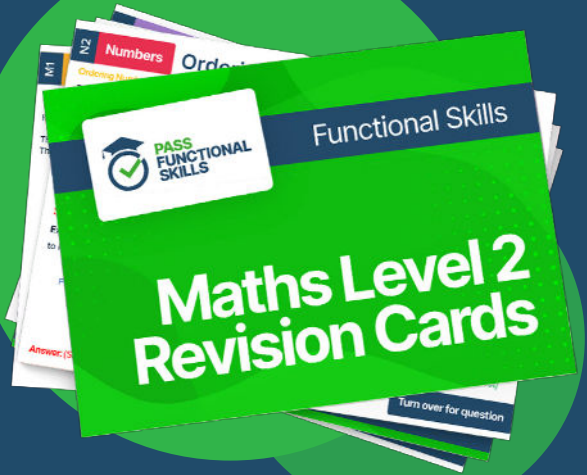
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