



Sample Paper: P000350

NCFE Functional Skills Qualification in Mathematics at Level 1 (501/2325/7)

Time Allowed 2 HOURS

You need the following to complete this assessment:

- ruler
- calculator

Read each document and activity carefully and attempt to answer **all** activities.

Write your answers in the spaces provided and ensure that your writing is legible.

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

At the end of the assessment hand all documents over to the invigilator as instructed.

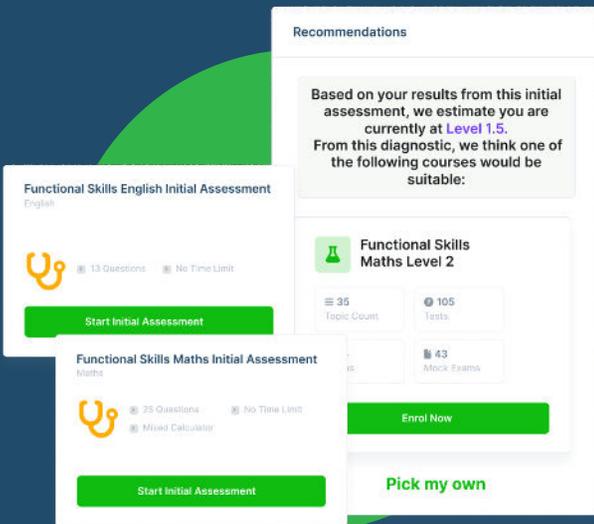
DO NOT TURN OVER UNTIL YOU ARE INSTRUCTED TO DO SO BY THE INVIGILATOR.

For Examiner use only:

Activity number	1	2	3	Total
Total Marks awarded				
Total Marks available	12	16	12	40

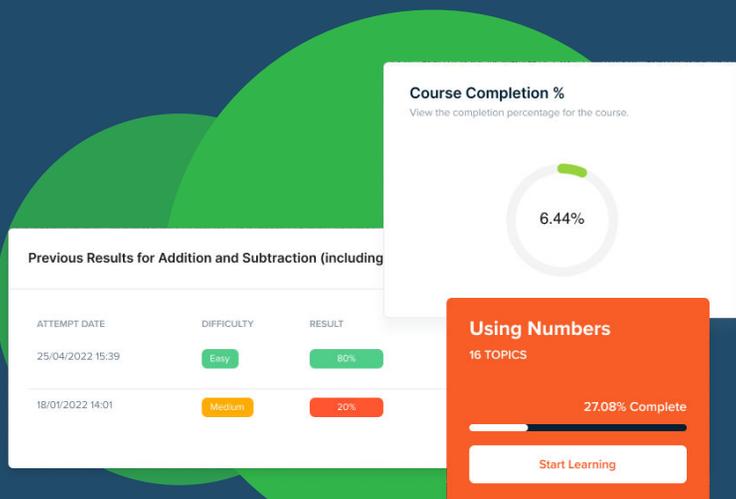
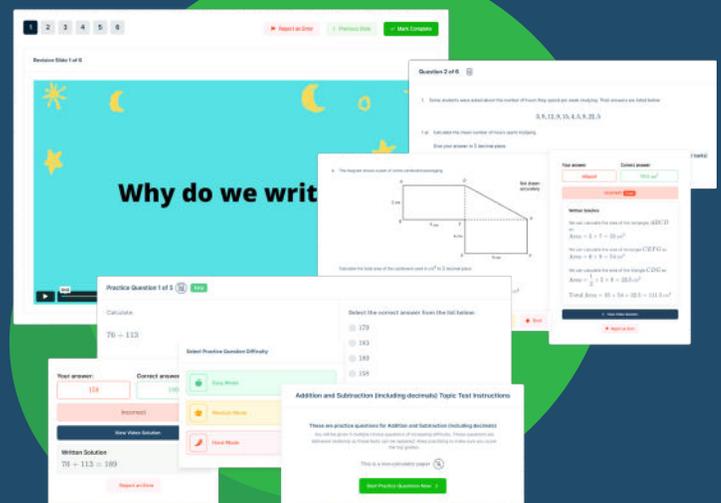


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- ✓ Determine when you are ready to sit your exam

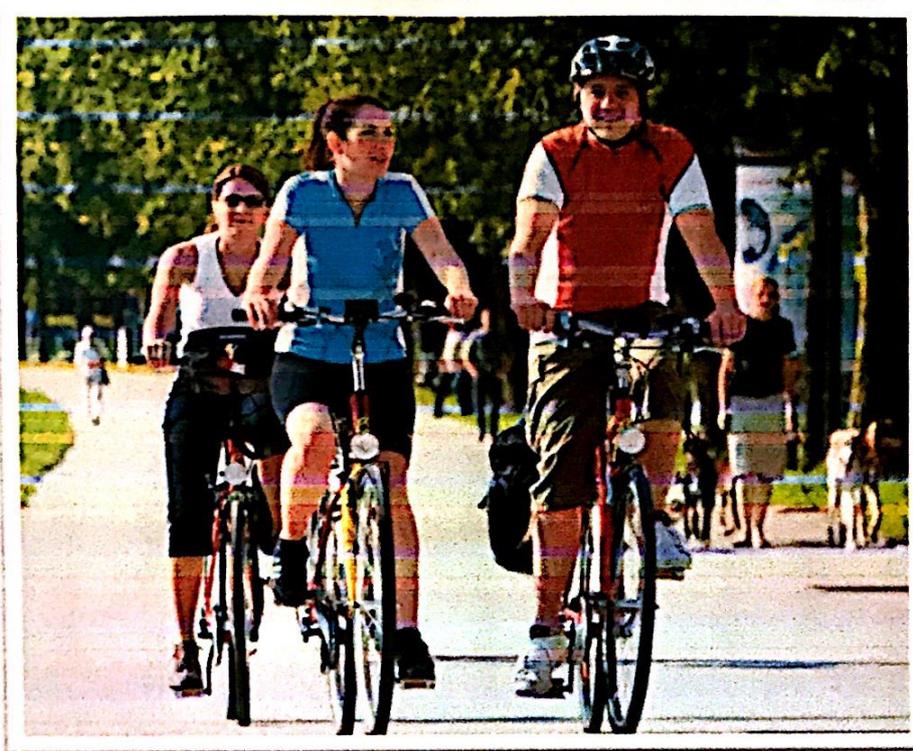
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Cycling



This assessment is about cycling.

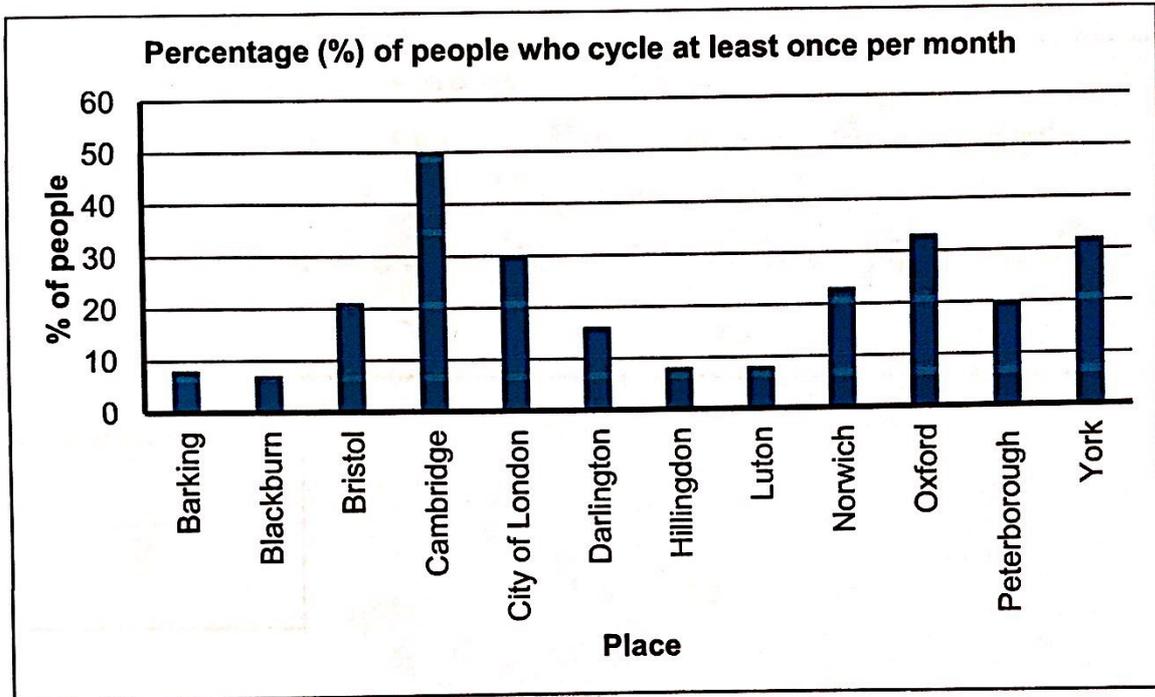
Complete activities 1, 2 and 3 based on the documents provided for each activity.

Activity 1

Task A

Adults and children cycle to work and school. They also cycle for fitness and fun.

The chart below shows the percentage of people who cycle at least once per month in different places.



- Which place has more than twice the percentage of people who cycle in Peterborough?

Marks available: 2

You must show your working:

$$\begin{aligned} \text{Peterborough} &= 20\% \\ 20\% \times 2 &= 40\% \\ \text{Only Cambridge} &\text{ is more than } 40\%. \end{aligned}$$

Your answer:

Cambridge

2. Find the places where more than a quarter of the people cycle at least once per month.

Show the number of these places as a fraction of all the places in the chart. Show your answer in its **simplest form**.

Marks available: 3

You must show your working:

A quarter means 25% .
Places more than 25% are Cambridge,
City of London, Oxford, York.
4 places out of 12 total places.
 $\frac{4}{12} = \frac{1}{3}$

Your answer:

$\frac{1}{3}$

Task B

1. In a town near London a teacher asks pupils in one class how they travel to school.

The table shows the results. There are 35 in the class.

Method of travel	Number of pupils
Car	15
Bus	3
Cycle	7
Walk	10

What is the ratio of pupils who walk compared to the pupils who travel by car? Show your answer in its **simplest form**.

Marks available: 2

You must show your working:

$$\begin{array}{l} \text{Walk} = 10 \\ \text{Car} = 15 \end{array} \quad = \quad \begin{array}{l} 10 : 15 \\ 2 : 3 \end{array}$$

Your answer:

$$2 : 3$$

2. What is the percentage of pupils in the class who cycle to school?

Marks available: 3

You must show your working:

7 cycle out of 35 in the class

$$\frac{7}{35} = \frac{1}{5} = 20\%$$

Your answer:

20%

3. In the town, 35% of journeys made to college are by car. 25% walk or cycle. The rest travel by bus.

What is the likelihood that a journey is made by bus? Show your answer as a decimal.

Marks available: 2

You must show your working:

$$100 - 35 - 25 = 40\%$$

which is 0.4.

Your answer:

0.4

Total marks available: 12

Activity 2

Jay, Vin and Sam are keen cyclists.



Task A

1. Jay measures the length of a cycling route using a mobile phone app. The app shows the distance as 31560 metres (m).

What is this distance in kilometres (km)?

Marks available: 1

Space for your working:

$$31560 \div 1000 = 31.56 \text{ km}$$

Your answer:

31.56 km

2. Vin completes laps of a cycle track with the times shown in the table. Each lap is 250 metres (m).

Lap number	Time (seconds)
Lap 1	32.14
Lap 2	31.94
Lap 3	<u>31.68</u>
Lap 4	31.89
Lap 5	32.14
Lap 6	<u>32.71</u>
Lap 7	32.57

What is the range of the lap times?

Marks available: 2

You must show your working:

$$32.71 - 31.68 = 1.03 \text{ seconds}$$

Your answer:

1.03s

Task B

1. Sam cycles for 2 hours and 30 minutes each week. She cycles on 5 days of the week and for the same length of time each day.

How many minutes does she cycle each day?

Marks available: 2

You must show your working:

$$\begin{aligned} 2 \text{ hours } 30 \text{ minutes} &= 150 \text{ minutes} \\ 150 \div 5 &= 30 \text{ minutes} \end{aligned}$$

Your answer:

30 mins

2. Sam uses 720 calories in 60 minutes of cycling. She drinks a can of lemonade which contains 168 calories.

How many minutes does she need to cycle to use the 168 calories?

Marks available: 3

You must show your working:

$$\begin{aligned} \frac{720}{60} &= 12 \text{ calories per minute} \\ 168 \div 12 &= 14 \text{ minutes} \end{aligned}$$

Your answer:

14 mins

3. Jay cycles and goes to the gym. Each week $\frac{2}{3}$ of his exercise is cycling and the rest is in the gym.

What percentage of his exercise is in the gym?

Marks available: 2

You must show your working:

$$1 - \frac{2}{3} = \frac{1}{3}$$
$$\frac{1}{3} \text{ is } 33.3\%$$

Your answer:

$$33.3\%$$

SAMPLE

Task C

'Cycling is one of the easiest ways to fit exercise into your daily routine because it's also a form of transport. It saves you money, gets you fit and is good for the environment.'

- NHS (2015, <http://www.nhs.uk/Livewell/fitness/Pages/Cycling.aspx>)

1. Rita is thinking about buying a bicycle to travel to college.

The costs to buy and maintain a good bicycle are:

- New bicycle £300
- Cycling helmet £40
- Reflective high visibility cycling belt £15
- Servicing £50 per year
- Insurance £25 per year

She expects to keep the bicycle for 2 years. What is the total cost over 2 years?

Marks available: 2

You must show your working:

$$\begin{aligned} \text{Upfront costs} & \quad \text{£}300 + \text{£}40 + \text{£}15 = \text{£}355 \\ \text{Yearly costs} & \quad \text{£}50 + \text{£}25 = \text{£}75 \\ \text{Total} & = \text{£}355 + 2 \times \text{£}75 = \text{£}505 \end{aligned}$$

Your answer:

£505

2. Rita has 2 options: to buy and maintain the bicycle or join her local gym which costs £30 per month.

How much money will she save over 2 years by cycling instead of using the gym?

Marks available: 4

You must show your working:

$$\begin{aligned} \text{Cycling costs } & \text{£}505 \\ \text{Gym costs } & \text{£}30 \times 12 \times 2 = \text{£}720 \\ \text{£}720 - \text{£}505 & = \text{£}215 \end{aligned}$$

Your answer:

£215

Show how you can check your answer:

$$\text{£}215 + \text{£}505 = \text{£}720$$

Total marks available: 16

Activity 3**Task A**

Jay completes a journey of 3.8 kilometres (km). The journey takes 15 minutes.

The average speed in km per hour is equal to the distance in km divided by the time in hours.

What is the average speed for the journey in km per hour?

Marks available: 4

You must show your working:

$$15 \text{ mins} = \frac{1}{4} \text{ hour}$$
$$\text{Speed} = 3.8 \div \frac{1}{4} = 15.2 \text{ km/h}$$

Your answer:

$$15.2 \text{ km/h}$$

Show how you can check your answer:

$$15.2 \times \frac{1}{4} = 3.8$$

Task B

1. Rita carried out a survey of people who cycled to college from Monday to Friday.

The number of cyclists per day is shown in the table.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number	87	122	136	142	128

What is the average (mean) number of cyclists per day?

Marks available: 2

You must show your working:

$$5 \text{ days} \quad \frac{87 + 122 + 136 + 142 + 128}{5} = 123$$

Your answer:

123

2. Rita recorded the number of cyclists on a Saturday for 4 weeks.

The results for the first 3 weeks are shown in the table.

The average (mean) number of cyclists on a Saturday is 43.

Complete the table with the missing number at Week 4.

Week	Week 1	Week 2	Week 3	Week 4
Number	38	42	39	53

← Your answer

Marks available: 3

Use the space below for your working:

$$\begin{aligned}
 &4 \text{ days} \quad (38 + 42 + 39 + \text{Week 4}) \div 4 = 43 \\
 &38 + 42 + 39 + \text{Week 4} = 43 \times 4 \\
 &38 + 42 + 39 + \text{Week 4} = 172 \\
 &119 + \text{Week 4} = 172 \\
 &\text{Week 4} = 172 - 119 \\
 &\text{Week 4} = 53
 \end{aligned}$$

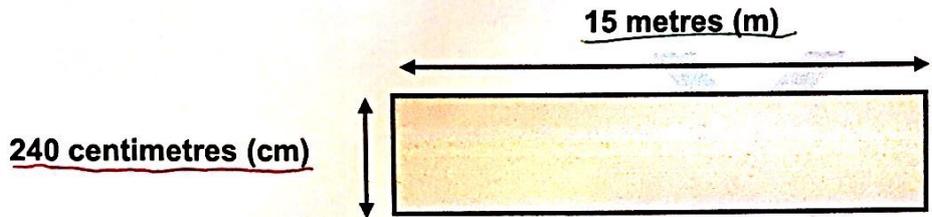
Task C

The college is adding a roof to cover the bicycle racks.

The diagram below shows the measurements of each roof.



Not to scale



What is the total area of roof needed for each shelter? Show your answer with the correct units.

Marks available: 3

You must show your working:

$$240\text{cm} = 2.4\text{m}$$
$$\text{Area} = 2.4 \times 15 = 36\text{m}^2$$

Your answer:

36 m²

Total marks available: 12

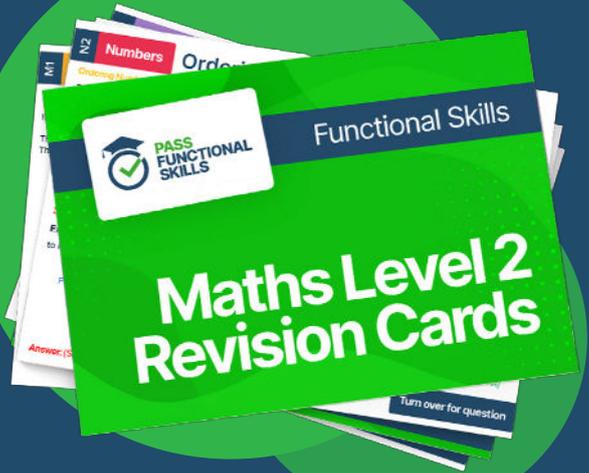
End of assessment



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