Sample Paper 1   maths Made easy

ncfe.

Sample Paper: P000312

NCFE Functional Skills Qualification in Mathematics at Level 2 (501/2324/5)

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're 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	15	13	12	40

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Level 2 Practice Papers
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MME
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FUNCTIONAL SKILLS MATHS LEVEL 2
PAPER 1

Please write clearly in block capitals.

Centre number

Candidate number

Surname

Forename(s)

Candidate signature

Functional Skills Level 2
MATHEMATICS
(8362)

Section 1: Non-Calculator Paper

Paper 1   Time allowed: 30 minutes

Materials
For this paper you must have:
• mathematical instruments.
You must **not** use a calculator.

Instructions
• Use black ink or black ball-point pen. Draw diagrams in pencil.
• Answer **all** questions.
• You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
• Do all rough work in this book. Cross through any work you do marked.
• State the units of your answer where appropriate.

Information
• The marks for questions are shown in brackets.
• The maximum mark for this paper is 20.
• You may ask for more answer paper, graph paper must be tagged securely to this answer book.

Advice
• In all calculations, show clearly how you work

INCLUDES
20 FULL PAPERS & ANSWERS

MME.

Swimming Pool

The town leisure centre has a swimming pool. The pool is 25 metres (m) long and can be divided into 8 lanes for fitness training and races.

You have been asked to help with some tasks about the swimming pool and the users.

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

Activity 1

Task A

1. The swimming pool is being used for lane swimming. There are 8 lanes in the pool. 3 of the lanes are reserved for **fast swimmers**.

What proportion of the lanes are available for **slower swimmers**?
Show your answer as a **percentage**.

Marks available: 3

You must show your working:

8 - 3 = 5 lanes for slower swimmers
~~5 ÷ 8 = 62·5%~~
(5 ÷ 8) × 100 = 62·5 %

Your answer:

62·5%

Show how you can check your answer:

(3 ÷ 8) × 100 = 37·5%
= 100 - 62·5

2. A plan of the swimming pool is required for a poster.

The plan should fit in a 10 centimetres (cm) x 10 cm space and be the maximum size.

What scale should be used to draw the 25 metres (m) x 16.8 m pool?

Marks available: 2

You must show your working:

10cm : 25m   is equivalent to

1 : 250   (1 cm : 250 cm)

Your answer:

1 : 250

Task B

1. There is a children's pool which measures 16 m x 8.75 m

The main swimming pool measures 25 m x 16.8 m

What is the ratio of the area of the children's pool compared with the main pool?
Show your answer **in its simplest form**.

Marks available: 3

You must show your working:

Childrens pool Area = 16 × 8·75 = 140 m²
Main pool Area = 25 × 16·8 = 420 m²

140 : 420 is equivalent to 1 : 3

Your answer:

1 : 3

2. A swimmer has been using a pool with a 50 yard length.

How many lengths would the swimmer need to do in the 25 m length pool to equal 10 lengths in the 50 yard pool?

(1 yard = 0.9144 metres)

Marks available: 4

You must show your working:

$50 \times 10 = 500$ yards

500 yards $= 500 \times 0.9144 = 457.2$ m

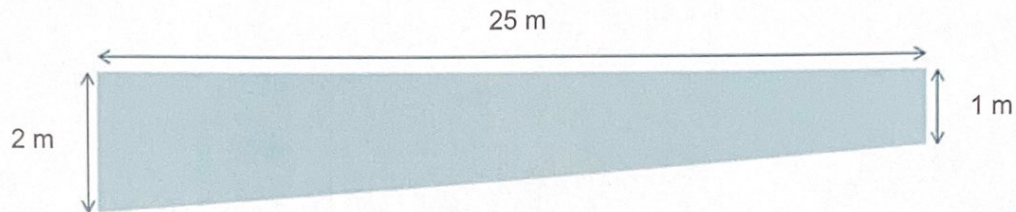$457.2 \div 25 = 18.288 = 19$

lengths of the 25 m pool

Your answer:

19

Show how you can check your answer:

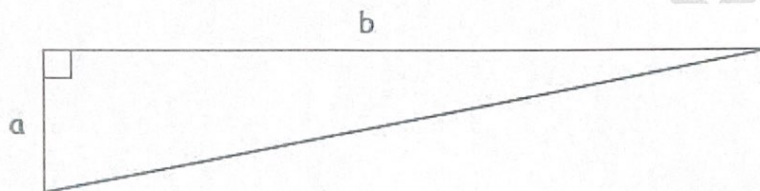$19 \times 25 = 475 > 457.2$

Task C

This diagram shows a cross-section of the swimming pool, shown from the side.

25 m

2 m

1 m

(Not drawn to scale)

The swimming pool is 16.8 metres (m) wide.

You may find this information useful:

b

a

Area of a right angled triangle = $\dfrac{a \times b}{2}$

The pool is full to the top edge.

What is the volume of water in the pool? Give your answer **in cubic metres**.

Marks available: 3

You must show your working:

Area = $(2 \times 25) - \left(\dfrac{25 \times 1}{2}\right) = 37.5 \, m^2$

Volume = $37.5 \times 16.8 = 630 \, m^3$

Your answer:

$630 \, m^3$

Total marks available: 15

8

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Please turn over for the next activity.

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MME
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FUNCTIONAL SKILLS MATHS LEVEL 2
PAPER 1

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Centre number ☐☐☐☐☐   Candidate number ☐☐☐☐

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Functional Skills Level 2

MATHEMATICS

(8362)

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INCLUDES
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PAPERS
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MME.

Activity 2

Task A

1. The tables show the prices for swimming, and the numbers of swimmers expected in the next month.

Type of user	Swimming prices
Adults	£3.80
Children (under 16)	£2.40
Concessions (students, pensioners)	£2.75

Type of user	Expected users for next month
Adults	1250
Children (under 16)	750
Concessions (students, pensioners)	400
Totals	2400

The total running cost for the swimming pool for the next month is expected to be £7500

Based on these figures, what will be the **profit or loss** for the swimming pool in the next month?

Marks available: 3

You must show your working:

Income = (3·80 × 1250) + (2·40 × 750) + (2·75 × 400)
        = £7650

7650 − 7500 = £150 profit
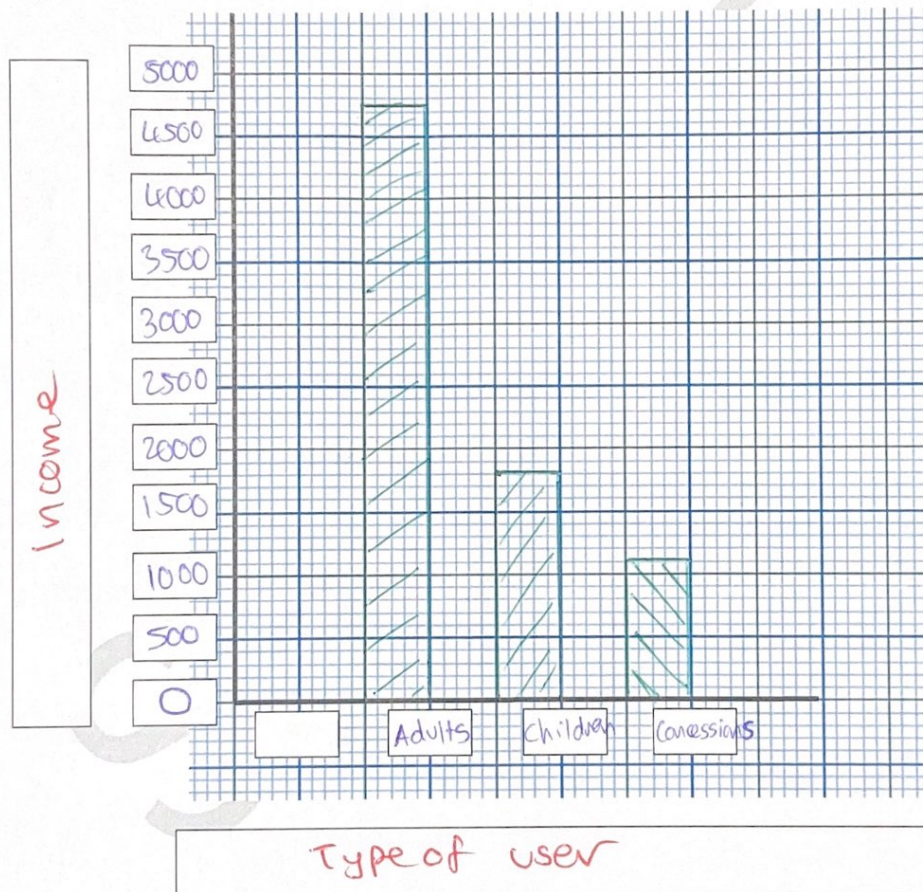
Your answer:

£150 profit

2. Produce a bar chart to show the **income** from each type of user over the month.

Marks available: 4

Your answer:

A graph to show the income from each type of user over the month

Income

| | 5000 |
| 4500 |
| 4000 |
| 3500 |
| 3000 |
| 2500 |
| 2000 |
| 1500 |
| 1000 |
| 500 |
| 0 |

Adults   Children   Concessions

Type of user

Task B

1. The table shows swimming pool water temperatures recorded at the same time
    each day over a 7 day period. The target temperature is 29 °C

Day	1	2	3	4	5	6	7
Actual Temperature °C	27.9	28.4	29.4	29.2	29.0	28.3	28.0

Find the average (mean) actual temperature over the 7 days.
Show your answer to **1 decimal place**.

What does this tell you about the actual water temperature compared with the target
temperature?

Marks available: 3

You must show your working:

Mean = $\dfrac{27.9 + 28.4 + 29.4 + 29.2 + 29.0 + 28.3 + 28.0}{7}$

= 28.6 °C

Your answer:

Mean = 28.6 °C

On average, the actual temperature is
lower than the target temperature.

2. What is the probability of any 1 of the recorded temperatures being within 0.5 °C above or below the target temperature of 29 °C?

Give your answer as a decimal, shown to **2 decimal places**.

Marks available: 3

You must show your working:

> There are 3 temperatures within 0.5°C
> (29.4, 29.2, 29.0)
> As a probability, there are
> $\frac{3}{7}$ = 0.43

Your answer:

> 0.43

Total marks available: 13

Activity 3

Task A

1.   In a public swimming pool,
       an event attracts 288 people.

31.25% of these are swimmers and the
rest are spectators.

How many **swimmers** are there?

Marks available: 2

You must show your working:

> 0.3125 + 288 = 90 swimmers

Your answer:

> 90

2.   There are 128 people who are visiting the swimming pool for the first time.

What proportion of all the 288 people is the number of first time visitors?
Give your answer as a fraction **in its simplest form**.

Marks available: 2

You must show your working:

> $\frac{128}{288} = \frac{4}{9}$

Your answer:

> $\frac{4}{9}$

Task B

The table shows the times in seconds for swimmers in 2 clubs in the 100 m freestyle race.

For each club, compare the time for the **fastest swimmer** with the **median time**.

Describe what your results tell you.

Club A Times (seconds)	Club B Times (seconds)
68.2	69.4
68.8	69.5
69.5	69.9
71.5	70.1
72.0	70.5
72.2	71.5
72.9	72.1
73.4	72.8
74.2	73.7
75.1	74.8
75.9	

Marks available: 5

You must show your working:

Club A: Median = 72.2
Fastest swimmer = 68.2
Difference = 72.2 - 68.2 = 4

Club B: Median = $\frac{70.5 + 71.5}{2}$ = 71
Fastest swimmer = 69.4
Difference = 71 - 69.4 = 1.6

For club B, their fastest swimmer and median are more alike than club A, so are more consistent.
Club B also has faster average.

Your answer:

Club A difference is 4 seconds

Club B difference is 1.6 seconds.

Task C

The MET value (Metabolic Equivalent of Task) is a measure of the level of activity.

This table shows some MET values for different activities:

Activity	MET
Cycling	5.0
Gymnastics	5.5
Swimming	6.0
Tennis	7.0
Volleyball	4.0
Walking	3.5

A swimmer weighs 75 kilograms (kg) and swims for **30 minutes**.

Use the formula below to calculate the calories used. Give your answer to the **nearest whole number**.

Calories per minute = MET x weight (kg) x 0.0175

Marks available: 3

You must show your working:

Calories per minute = 6.0 × 75 × 0.0175
= 7.875

Total calories = 30 × 7.875 = 236.25
= 236
(nearest whole number)

Your answer:

236

Total marks available: 12

End of assessment