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N5

National Qualifications SPECIMEN ONLY

Mark

# SQ26/N5/01

# Lifeskills Mathematics Paper 1 (Non-Calculator)

Date — Not applicable

Duration — 50 minutes

*SQ26N501*

**Fill in these boxes and read what is printed below.**

Full name of centre

Town

Forename(s)

Surname

Number of seat

Date of birth

Day DD Month MM Year YY

Scottish candidate number

**Total marks — 35**

**You may NOT use a calculator.**

Attempt ALL questions.

Use **blue** or **black** ink. Pencil may be used for graphs and diagrams only.

Write your working and answers in the spaces provided. Additional space for answers is provided at the end of this booklet. If you use this space, write clearly the number of the question you are attempting.

Square-ruled paper is provided at the back of this booklet.

Full credit will be given only to solutions which contain appropriate working.

State the units for your answer where appropriate.

Before leaving the examination room you must give this booklet to the Invigilator. If you do not, you may lose all the marks for this paper.

SQA ©

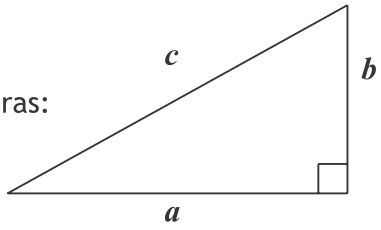
*SQ26N501*

**FORMULAE LIST**

Circumference of a circle: $C = \pi d$

Area of a circle: $A = \pi r^2$

Theorem of Pythagoras:



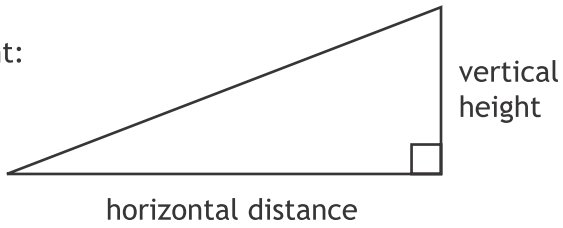

$a^2 + b^2 = c^2$

Volume of a cylinder: $V = \pi r^2 h$

Volume of a prism: $V = Ah$

Standard deviation: $s = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}} = \sqrt{\frac{\Sigma x^2 - (\Sigma x)^2/n}{n-1}}$, where $n$ is the sample size.

Gradient:




$$\text{gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

**Attempt ALL questions**

**1.** Dave and Elaine each have the same monthly data allowance on their mobile phone contract.

Dave has used $\frac{4}{7}$ of his monthly data allowance.

Elaine has used $\frac{5}{8}$ of her monthly data allowance.

Who has used the most data?

Give a reason for your answer. **2**

**2.** Alzena drove from Glasgow to Manchester Airport, 252 miles away.

Alzena left Glasgow at 11.25 pm.

She arrived at Manchester Airport at 3.25 am.

(a) How long did Alzena's journey take ? **1**

(b) Calculate her average speed in miles per hour for the journey. **2**

**Total marks 3**

MARKS | DO NOT WRITE IN THIS MARGIN

**3.** A charity had a stall at a fair selling crafts and cakes to raise money.
The stall had sales worth £70.

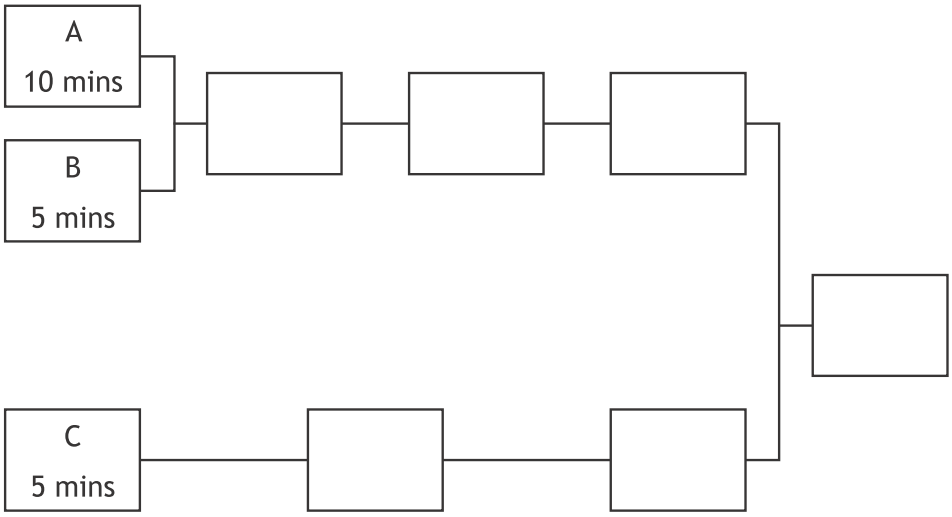

The charity must pay 15% of the money from the sales to the organisers.
The materials for the crafts and cakes cost £24.
What is the **net** amount of money raised? **2**

**4.** Three friends decide to tidy up their garden.

The tasks which need to be done are shown in the table below:

| Tasks | Detail | Preceding task | Time (minutes) |
|---|---|---|---|
| A | Clear rubbish from the garden | None | 10 |
| B | Get lawnmower and edge shears out of the shed | None | 5 |
| C | Get hedge trimmer out of the shed | None | 5 |
| D | Cut grass in the garden | A, B | 30 |
| E | Trim edges of the lawn with shears | B, D | 10 |
| F | Cut the hedge | C | 20 |
| G | Put grass clippings in bag | D, E | 5 |
| H | Put hedge clippings in bag | F | 5 |
| I | Take bags to recycling centre | G, H | 45 |

(a) Complete the chart below by writing the letter of the tasks and time (in minutes) in the boxes. **2**




(b) Calculate how much time **in total** the three friends should allow for the garden to be completed? **1**

**Total marks 3**

5. Callum, a fitness instructor, is working with ten adults.

He records their resting pulse rates in beats per minute (bpm).

He then takes them on a "Step" exercise session and records their pulse rates immediately after this exercise.

Callum allows the adults to return to their resting pulse rates.

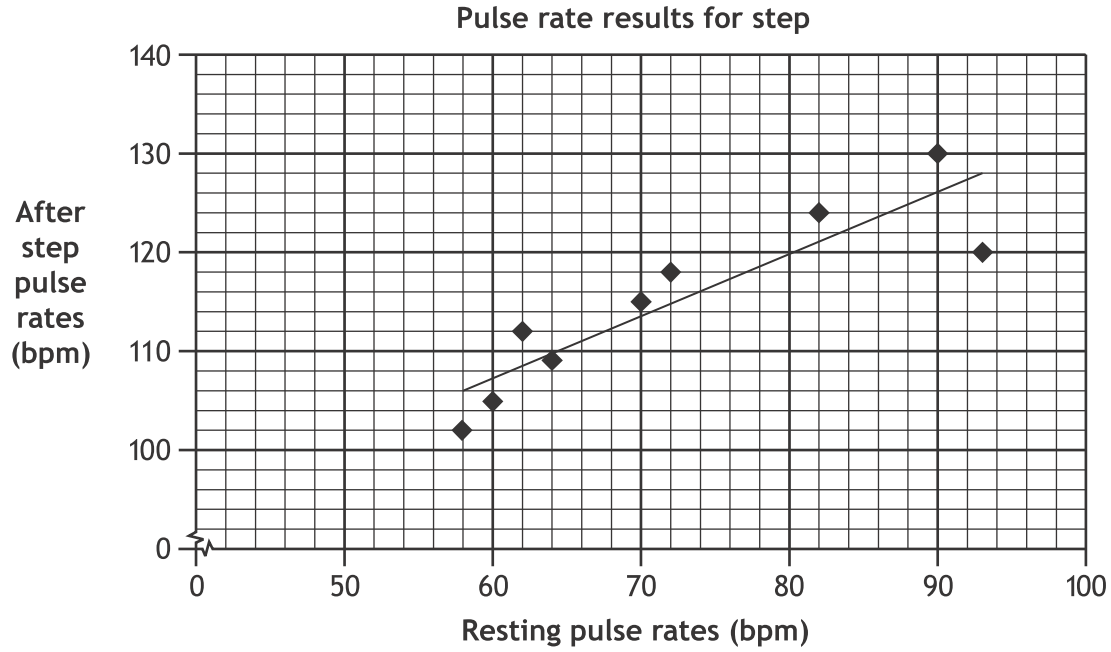
He then takes them on a "Rowing" exercise session and records their pulse rates immediately after this exercise.

The results are displayed in the table below:

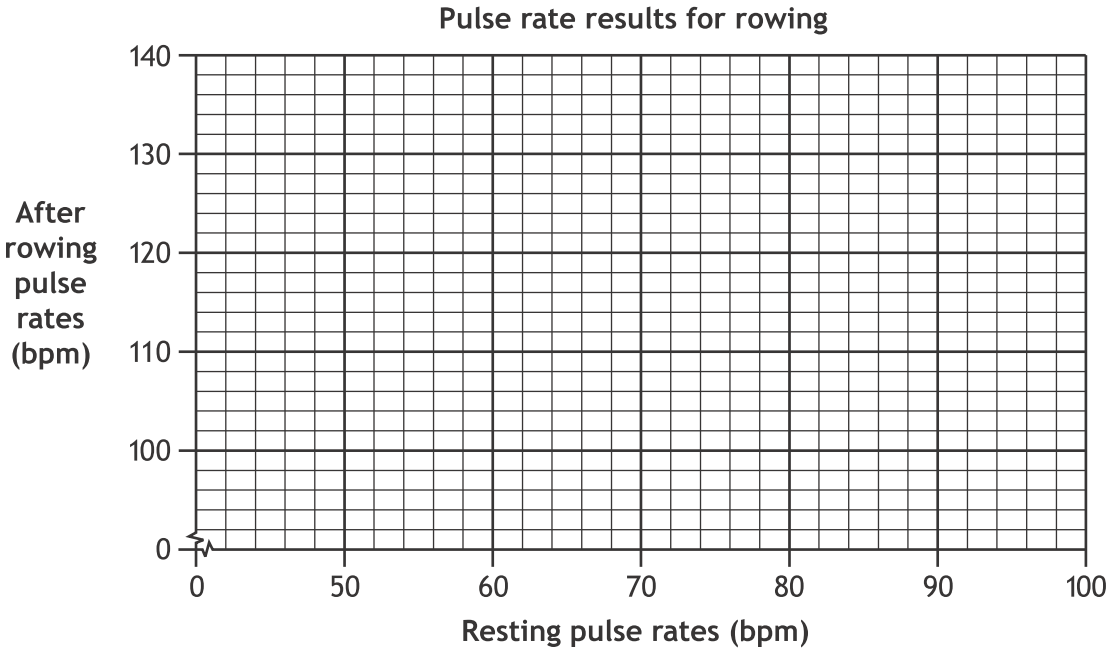
| Adult | | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Resting** pulse rate (bpm) |  | 60 | 70 | 64 | 78 | 58 | 93 | 62 | 72 | 82 | 90 |
| **After Step** pulse rate (bpm) |  | 105 | 115 | 109 | 120 | 102 | 120 | 112 | 118 | 124 | 130 |
| **After Rowing** pulse rate (bpm) |  | 102 | 117 | 100 | 110 | 100 | 120 | 105 | 107 | 112 | 120 |

**5. (continued)**

Callum has drawn the following scattergraph of the pulse rate results for the **step** exercise, and marked in a line of best fit.




(a) Mark in the pulse rate results for **rowing** on the grid below. **2**




(b) Draw a line of best fit on the diagram above. **1**

**5. (continued)**

(c) A new member of the group had a resting pulse rate of 87. After exercise his pulse rate was 112.

Which exercise do you think he is likely to have done?

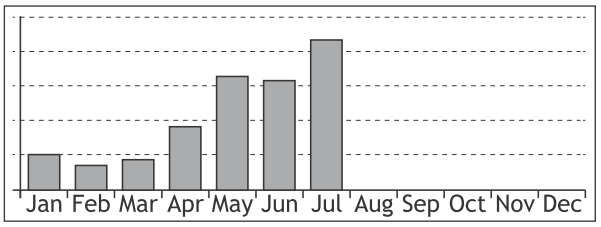
Give a reason for your answer. **2**

**Total marks 5**

**6.** The table below shows the average monthly exchange rates for British pounds (GBP) to euros (EUR) between January and July 2012.

**Foreign Exchange Conversion Data**

1 GBP to Euros




**Average Monthly Rates**

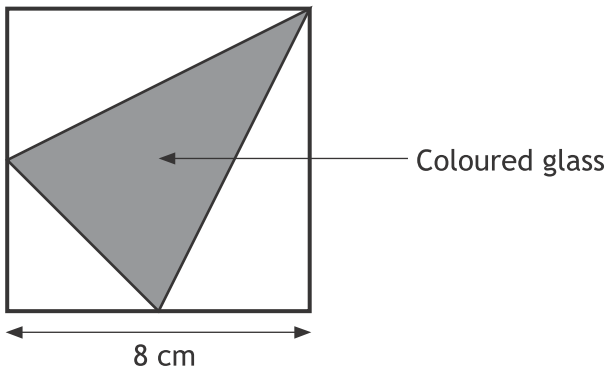
| | |
|---|---|
| January | 1·2018 EUR |
| February | 1·1949 EUR |
| March | 1·1984 EUR |
| April | 1·2166 EUR |
| May | 1·2435 EUR |
| June | 1·2410 EUR |
| July | 1·2637 EUR |

Using the information above, how many more euros would I have received if I changed £500 when the exchange rate was at its highest in comparison to its lowest? 4

**Show all your working.**

MARKS DO NOT WRITE IN THIS MARGIN

**7.** In a **square** plain glass panel, a designer wants to place a coloured triangular piece of glass as shown in the diagram below.




The triangular piece of coloured glass is formed from a corner of the square to the mid points of the opposite edges as shown in the diagram.

Calculate the ratio of the area of **coloured** glass to the area of **plain** glass. **4**

**Show all your working.**

MARKS | DO NOT WRITE IN THIS MARGIN

**8.** Jill earns £24 300 per annum.

She has a personal tax allowance of £8130.

She pays tax at the basic rate of 20%.

(a) Calculate how much tax she must pay each year. **2**

(b) Jill also pays £166·08 **per month** in National Insurance and £100 **per month** into her pension.

(i) Calculate Jill's **total monthly** deductions. **2**

(ii) Calculate Jill's **monthly** take home pay. **1**

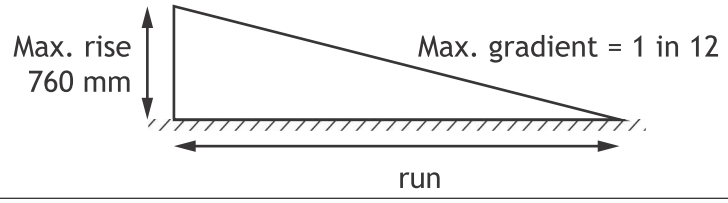
**Total marks 5**

MARKS DO NOT WRITE IN THIS MARGIN

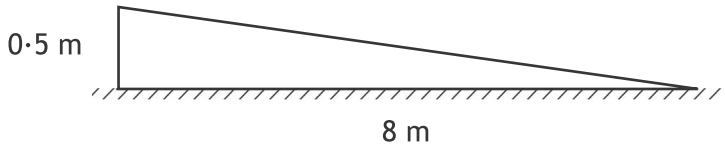
9. The 'Accessibility Guidelines for Buildings and Facilities for Wheelchair Access' give two recommendations.

Recommendations

1. The maximum gradient of a ramp shall be 1 in 12.
2. The maximum rise shall be 760 mm for any length of run.




The drawing below shows the design of a **new ramp**.




(a) Does the new ramp meet Recommendation 1 ?

**Give a reason.** **2**

(b) Does the new ramp meet Recommendation 2 ?

**Give a reason.** **1**

**Total marks 3**

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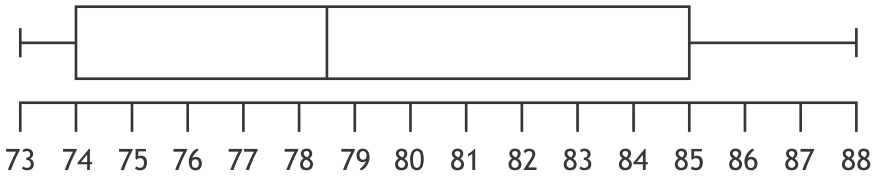
**10.** Juma recorded his golf scores over the year. He played 12 times in windy conditions and 12 times in calm conditions.

The data for the windy conditions are illustrated in the box plot below.

**Windy conditions**




His scores for the calm conditions are shown in the table below.

**Calm conditions**

| | | | |
|---|---|---|---|
| 70 | 68 | 73 | 70 |
| 67 | 78 | 74 | 73 |
| 74 | 76 | 78 | 76 |

(a) Construct a box plot to illustrate the data for Juma's golf scores in calm conditions. **3**

**10. (continued)**

(b) State a valid comparison between the scores for the windy and calm conditions. **1**

**Total marks 4**

**[END OF SPECIMEN QUESTION PAPER]**

MARKS | DO NOT WRITE IN THIS MARGIN

## ADDITIONAL SPACE FOR ANSWERS

MARKS | DO NOT WRITE IN THIS MARGIN

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