

Formula 1 - Functional Maths questions

Name _____ Date _____

You must show your working out even if you use a calculator.



1. The average length of a lap is 5 km and the number of laps is usually around 60.

Total distance = 'laps left' x 'average length of lap'

Calculate how many laps are left if a car has already travelled:

- a) 40 km
- b) 150 km
- c) 0 km
- d) 300 km
- e) 75 km

2. The stopping distance (in metres) of an F1 car is:

Stopping distance = speed + 50

Calculate the stopping distance of a car travelling at:

- a) 30 mph
- b) 60 mph
- c) 75 mph
- d) 115 mph
- e) 175 mph

3. The weight of fuel used in each 5 km lap is 3kg/lap:

Total weight of fuel used = Distance travelled ÷ 3

What weight of fuel would be used to cover

- a) 1 lap
- b) 10 laps
- c) 11 laps
- d) 5 laps
- e) 55 laps

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4. The average amount of fuel (in litres) a racing car uses is 75 litres per 100 km.

$$\text{Amount of fuel needed} = (\text{distance} \times 75) \div 100$$

Calculate the amount of fuel needed for distances of:

- a) 25 km
- b) 5 km
- c) 1 km
- d) 180 km
- e) 300 km

5. The number of Twitter fans (in hundred thousands) an F1 driver has is:

$$\text{Number of fans} = \text{number of wins} \times 10$$

How many Twitter fans would a driver have if he had won:

- a) 1 race
- b) 3 races
- c) 5 races
- e) 18 races

6. A racing car travels at 160 km per hour.

$$\text{Time} = \text{distance} \div \text{speed}$$

Calculate (in seconds) the time taken to travel:

- e) 90 metres
- f) 270 metres
- g) 180 metres
- h) 135 metres
- i) 225 metres

7. The time taken for a fuel stop (in seconds) is given by:

$$\text{Total time} = \text{volume of fuel (m}^3\text{)} \div \text{rate of flow}$$

If the 'rate of flow' is $30 \text{ (ms}^{-1}\text{)}$, calculate the refuel time for these volumes:

- a) 30 m^3
- b) 90 m^3
- c) 270 m^3
- d) 300 m^3
- e) 150 m^3

FUNCTIONAL MATHEMATICS Coverage and Range statements (indicative only)

Coverage and range statements provide an indication of the type of mathematical content candidates are expected to apply in functional contexts. Relevant content can also be drawn from equivalent National Curriculum levels and the Adult Numeracy standards. ✓ indicates the main coverage and range skills covered in this resource, although these may vary with the student group and how the resource is used by the teacher.

Reference: Ofqual (2009), *Functional Skills criteria for Mathematics: Entry 1, Entry 2, Entry 3, level 1 and level 2*. <https://www.gov.uk/government/publications/functional-skills-criteria-for-mathematics>

Level 1

- | | |
|---|---|
| <ul style="list-style-type: none"> a) Understand and use whole numbers and understand negative nos. in practical contexts ✓ b) Add, subtract, multiply and divide whole numbers using a range of strategies ✓ c) Understand and use equivalences between common fractions, decimals and percentages d) Add and subtract decimals up to 2 decimal places e) Solve simple problems involving ratio, where one number is a multiple of the other f) Use simple formulae expressed in words for one- or two-step operations ✓ | <ul style="list-style-type: none"> g) Solve problems requiring calculation, with common measures, including money, time, length, weight, capacity and temperature ✓ h) Convert units of measure in the same system ✓ i) Work out areas and perimeters in practical situations j) Construct geometric diagrams, models and shapes k) Extract and interpret information from tables, diagrams, charts and graphs l) Collect and record discrete data and organise and represent information in different ways m) Find mean and range n) Use data to assess the likelihood of an outcome |
|---|---|

Level 2

- | | |
|---|---|
| <ul style="list-style-type: none"> a) understand and use positive and negative numbers of any size in practical contexts ✓ b) carry out calculations with numbers of any size in practical contexts, to a given number of decimal places ✓ c) understand, use and calculate ratio and proportion, including problems involving scale d) understand and use equivalences between fractions, decimals and percentages ✓ e) understand and use simple formulae and equations involving one or two operations ✓ f) recognise and use 2D representations of 3D objects | <ul style="list-style-type: none"> g) find area, perimeter and volume of common shapes h) use, convert and calculate using metric and, where appropriate, imperial measures ✓ i) collect and represent discrete and continuous data, using information and communication technology (ICT) where appropriate j) use and interpret statistical measures, tables and diagrams, for discrete and continuous data, using ICT where appropriate. k) use statistical methods to investigate situations l) use probability to assess the likelihood of an outcome |
|---|---|

Note: Page 1 problems are mostly Level 1, Page 2 are mostly Level 2 /GCSE.

This resource also covers several **adult numeracy curriculum** elements. <http://www.excellencegateway.org.uk/content/etf1075>

