



# FUNCTIONAL SKILLS MATHEMATICS

AQA | Edexcel | City & Guilds | Open Awards | NCFE | Highfield

Level 2

## Formulas

### Materials

- You **cannot** use a calculator for **questions** with this symbol.



### Instructions

- Answer **all** questions.
- Answer questions on separate paper.

### Information and Advice

- The marks for each question are shown in brackets – use this as a guide on how long to spend on each question.
- Read each question carefully before you answer it.
- Check you answers.



- Q1** Jimmy earns £11.20 per hour. How much will Jimmy earn in 7 hours?  
**[1 mark]**
- Q2** Nabila works in a factory where she packs tins of biscuits. She can pack 3 tins of biscuits in 1 minute. How many tins of biscuits can she pack in 1 hour?  
**[1 mark]**
- Q3** Jeremi is a runner. He can run 1 km in 6 minutes.  
**3(a)** How long would it take him to run 5 km?  
**[1 mark]**
- 3(b)** How long would it take him to run 8 km?  
**[1 mark]**
- Q4** A shoulder of lamb takes 40 minutes per kilogram to cook, plus an extra 25 minutes. How long would it take to cook a 1.2 kg shoulder of lamb?  
**[2 marks]**
- Q5** Maggie hires a boat on holiday. The boat hire company charges a fixed rate of £20 to hire the boat, plus £3.50 per hour of hiring. How much would it cost Maggie to hire the boat for 3 hours?  
**[2 marks]**
- Q6** Abdul is getting new broadband. The broadband company charge a one-off installation fee of £30, plus £24.50 per month of usage. Abdul wants this broadband for 18 months. How much would this broadband cost him in total?  
**[2 marks]**
- Q7** Dean is going to buy a phone. The phone company charge £32 per month for the phone, but as a reward for its customers they give the customer £50 cashback for purchasing the phone. Dean buys this phone on a 12 month contract. How much would it cost him altogether?  
**[2 marks]**
- Q8** Dev wants to buy some pic-n-mix sweets. The sweets cost £2 for the first 100 g of sweets, plus 80p for each additional 100 g. Dev has £5 and wants to buy 400 g of sweets. Will he have enough money? Show your working.  
**[3 marks]**

- Q9** Haroon needs to pay for a taxi. The taxi driver charges a fixed fee of £2.50 plus an additional £1.20 per mile. Haroon travels 4.6 miles and pays with a £10 note. How much change will he receive?  
**[3 marks]**
- Q10** Calculate the value of  $7ab^2$  when  $a = 2$  and  $b = 3$ .  
**[1 mark]**
- Q11** Work out  $(3a + b)^2$  when  $a = 3$  and  $b = 5$ .  
**[1 mark]**
- Q12** A school PE teacher is separating people out into teams. The formula  $c = s \div 10$  is used to work out the number of team captains needed.  $s$  represents the number of students and  $c$  represents the number of captains.  
If there are 60 students in total, how many team captains are needed?  
**[2 marks]**
- Q13** Ali has a wooden block in the shape of a square-based pyramid. The pyramid has a base length of 7 cm and a height of 9 cm.  
The volume of a square based pyramid is  $V = \frac{1}{3}a^2h$ , where  $V$  is the volume,  $a$  is the base length and  $h$  is the height.  
Calculate the volume of Ali's wooden block.  
**[2 marks]**
- Q14** Didier is planning on hiring a car on holiday. The cost of hiring a car is 50 plus 10 times the number of days the car is hired for (in Pounds, £).  
**(a)** Write this as a formula, where  $c$  is the cost of hiring a car, and  $d$  is the number of days the car is hired for.  
**[1 mark]**
- (b)** How much would it cost Didier to hire a car for 7 days?  
**[2 marks]**

**Q15** Temperature can be measured in degrees Celsius ( $^{\circ}\text{C}$ ) or degrees Fahrenheit ( $^{\circ}\text{F}$ ). The formula  $F = \frac{9}{5}C + 32$  can be used to swap between them, where C represents Celsius and F is Fahrenheit.

If it is  $30^{\circ}\text{C}$  in Spain and  $82.4^{\circ}\text{F}$  in France, which country is the hottest?

**[3 marks]**

**Q16** WaterCo bills are worked out using the formula below:

$$\text{cost} = m \left( \frac{v}{1000} + 40 \right)$$

cost = price in £,  $m$  = number of months,  
 $v$  = average volume of water used per month in litres

WaterCo give customers a cashback incentive for when they use less than 10000 litres of water on average per month.

Joanne wants to work out how much her water bill will be for the year.

Joanne uses on average 6000 litres of water per month.

In total, it costs Joanne £517 for her water for the year. How much cashback does she get?

**[3 marks]**