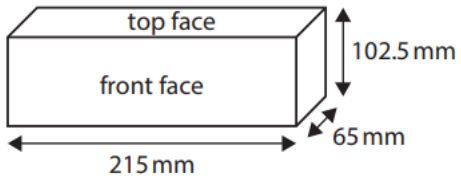
Functional Skills Maths | Level 2
Calculator Long Question Scaffolded Paper 3

1. Amir is a builder.

He needs to work out how much it will cost him to build a wall.

Amir uses this information to work out the number of bricks he needs. The wall will be
- 7.9 m in length
- 9 bricks in height
- 3 bricks in width.

The bricks Amir will use are in the shape of a cuboid.



Amir has these prices for bricks.

Price per brick			
£1.50	£1.75	£1.68	£1.99
£1.65	£1.80	£1.49	£1.50

He uses the mode of these prices to work out the total cost of the bricks he needs for the wall.

Amir will also pay £125 for the other materials he needs to build the wall.

Work out the total cost of the bricks and other materials for Amir.

a. How many bricks are there in 7.9 m? Round this to a whole number.

b. How many bricks will Amir need in total?

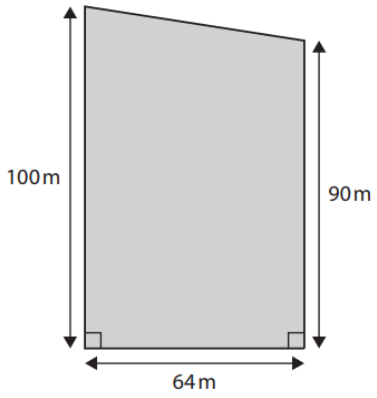
c. What is the mode price of the bricks?

d. How much will Amir spend on bricks?

e. How much will Amir spend in total?

2. Jack is managing a concert.

The diagram shows the total floor space for the concert.



Jack receives £21 for each square metre of floor space from ticket sales.

He donates 1/7 of the total he receives from ticket sales to a charity.

How much money does Jack donate to the charity? You **must** show your working.

a. What is the missing measurement of the triangle in the diagram?

b. What is the formula for the area of a triangle?

c. What is the area of the triangle?

d. What is the area of the rectangular part of the floor space?

e. How much money does Jack receive from ticket sales in total?

f. How much money does Jack donate to charity?

3. Ben is the manager of a leisure centre.

He has this formula to work out the volume of the water in the pool.

$$V = 10dw + 15aw$$

Where:
V = the volume of the water in the pool (m^3)
w = width of the pool (m)
d = the depth of the water at the deep end of the pool (m)
a = the depth of the water at the shallow end of the pool (m)

Ben knows the width of the pool is 12 m. The depth of the water at the deep end is 2 m. The depth of the water at the shallow end is 1.5 m.

Ben uses two water pumps at the same time to empty the pool.

- Pump A empties water at a rate of 31.2 m^3 per hour.
- Pump B empties water at a rate of 27 m^3 per hour.

Ben thinks that using the two water pumps will empty the pool in less than 9 hours. Is he correct? Show why you think this.

a. Using the formula, work out the volume of the pool.

b. What is the total rate that both pumps together will empty the pool per hour?

c. How long will it take both pumps to empty the pool?

d. Is Ben correct? Show why you think this.

4. Ricardo gets a new job at a leisure centre.

He records the number of visits of 50 clients in August.

Number of visits	Frequency
1 to 7	8
8 to 14	24
15 to 21	12
22 to 28	6
Total	**50**

Ricardo works out an estimate for the mean number of visits by these clients in August.

His manager tells him this is a 16% increase on the mean number of client visits in July.
What was the mean number of client visits in July?

a. Work out the midpoints for each of the number of visits rows.

b. Use the midpoints to find the total number of visits per row.

c. Find the total number of visits in August.

d. Work out the estimated mean for the number of visits in August.

e. What is the estimated mean for August as a percentage of the July visits?

f. What is the mean number of client visits in July?