

## Functional Skills Mathematics | Level 1 | Estimation

As part of Level 1 Functional Skills, you need to be able to use estimation effectively. Let's have a look at a typical Level 1 question:

<p>Lewis is building a brick wall. The wall will need 19 bags of cement. Each bag of cement costs £7.83. Use estimation to work out how much Lewis will need to pay for the cement. You <b>must</b> show your working.</p> <p>(3)</p>	<p>Notice the question uses the word estimation, telling you what to do.</p>
	<p>Notice the word <b>must</b> is in bold. This means you need to show your working out.</p>

There are three ways you can approach this question but only one will lead to marks:

1. Work out the answer in full: this takes a lot of time (estimation is usually non calculator), is easy to get wrong and will not lead to marks
2. Work out the answer in full and then estimate the answer: this takes a lot of time, is easy to get wrong and can give you the wrong answer
3. Use estimation to find the answer: easier than the other two options and will lead to a valid answer

Look at the example question.

- Using estimation 19 bags at £7.83 each would be  $20 \times 8 = £160$ .
- Using the real numbers and then estimating is  $19 \times 7.83 = £148.77$ , with £150 as the answer.

We would only accept £160 as the correct answer.

### TOP TIPS

- When you estimate, you need to round the numbers first
- Rounding the numbers makes the calculations easier to do
- Round the numbers to the nearest 10 or 100

Worked Example:

A shop sells T-shirts at £36 each and scarves at £21 each.  
Melinda buys 12 T-shirts and 12 scarves.

Use estimation to work out how much Melinda will need  
to pay.

(3)

Using estimation, a T-shirt costs £40 and a scarf costs £20.

$$\begin{aligned}\text{Cost} &= 12 \times (36 + 21) \\ &= 12 \times (40 + 20) \\ &= 10 \times 60 \\ &= 600\end{aligned}$$

The cost is approximately £600

### Let's Practice

1. Aquil earns £288 per week. He needs to work out his annual salary. Use estimation to work out his annual salary.
2. Trudi earns £1628 per month. She needs to work out her annual salary. Use estimation to work out her annual salary.
3. Peter sold 89 pairs of scissors for £24 each. They cost him £11. Use estimation to work out how much profit he made. You **must** show your working out.
4. A coin weighs 12g. Ria has a bag of 167 coins. Use estimation to work out how much the bag of coins weighs.
5. A coin weighs 12g. Sam has a bag of coins that weighs 983g. Use estimation to work out how many coins he has.

## Exam Style Questions

1.

A wall has an area of  $123\text{m}^2$   
A tin of paint will cover  $14\text{m}^2$  of wall.  
Hattie needs to work out how many tins of paint she will need to buy.  
  
Use estimation to work out how many tins she needs.

(3)

2.

Shanika sold 378 handbags for £58 each.  
She paid £32 each for them.  
  
Use estimation to work out how much profit she made.  
You **must** show your working out.

(3)

3.

A farmer bought 3179kg of seeds at a cost of £17 per kilogram.  
  
Use estimation to work out the total cost of the seeds.

(3)

4.

A machine operator makes 74 bolts every hour.  
She works 39 hours per week for 48 weeks of the year.  
  
She will get a bonus if she makes more than 130,000 bolts in a year.  
  
Use estimation to work out if she will receive a bonus this year. You **must** show your working out.

(3)

5.

Aaron is building a brick wall.  
  
The wall will need 1025 bricks.  
The weight of each brick is 2.89kg.  
  
Aaron will pay a delivery charge if the total of bricks is over 2500kg.  
Use estimation to work out if you think Aaron will need to pay the delivery charge. You **must** show your working out.

(3)

## Answers

### Let's Practice

You might work out your estimates differently, but make sure they are sensible.

1.  $300 \times 50 = \text{£}15,000$
2.  $1600 \times 10 = \text{£}16,000$
3. Profit on 1 pair is  $20 - 10 = \text{£}10$   
Overall profit is  $10 \times 90 = \text{£}900$
4.  $10 \times 170 = 1700\text{kg}$
5.  $1000$  divided by  $10 = 100$  coins

### Exam Style Questions

1.  $120$  divided by  $10 = 12$   
Hattie will need 12 tins.
2.  $60 - 30 = \text{£}30$   
 $30 \times 400 = \text{£}1200$   
Shanika will make  $\text{£}1200$  profit.
3.  $3200 \times 20 = \text{£}64,000$
4.  $70 \times 40 = 2800$   
 $2800 \times 50 = 140,000$   
She will receive a bonus.
5.  $1000 \times 3 = 3000\text{kg}$   
Aaron will have to pay a delivery charge.