What is estimating?

It is not always necessary to know the exact answer of some calculations. Estimating is a way of working out an approximate answer. Estimating can also be useful to give an idea of the general size of the answer before carrying out a calculation.

Why use estimation?

Estimating can be helpful in many everyday situations, for example:

- a decorator working out how many rolls of wallpaper or tins of paint to buy;
- a shopper checking they have enough money to buy all the items required;
- a party host working out how many pizzas to order;
- a joiner who needs to know how many shelves can be cut from a length of wood.

Rewarding Learning

Estimating answers to calculations

Before you carry out a calculation, it can be useful to estimate the answer to give an idea of the approximate answer.

If your estimated answer is very different to your actual answer, you have probably made a mistake in your calculations!

When estimating answers to calculations it can be useful to:

- **round 2-digit numbers to the nearest 10**
- **round 3-digit numbers to the nearest 100**
- **round 4-digit numbers to the nearest 1000**

Examples

Elaine is adding 78 and 48

She chooses to estimate the answer.

She rounds both numbers to the nearest 10

80 + 50 = 130

Her estimated answer is 130

The exact answer is 126, so Elaine's estimate is very close.

Jake calculates 123 × 62 and gets 1044

Use estimation to check if his answer is correct.

Round 123 to the nearest 100 and 62 to the nearest 10

100 × 60 = 6000

The estimated answer is 6000

This is almost 6 times bigger than Jake's answer, so he has made a mistake in his calculation.

The exact answer is 7626

Estimate the answer to 184 ÷ 32

Round 32 to 30

If we round 184 to 200, the calculation will be 200 ÷ 30, which is not easily done.

It is better to round 184 to 180 (3 divides evenly into 18)

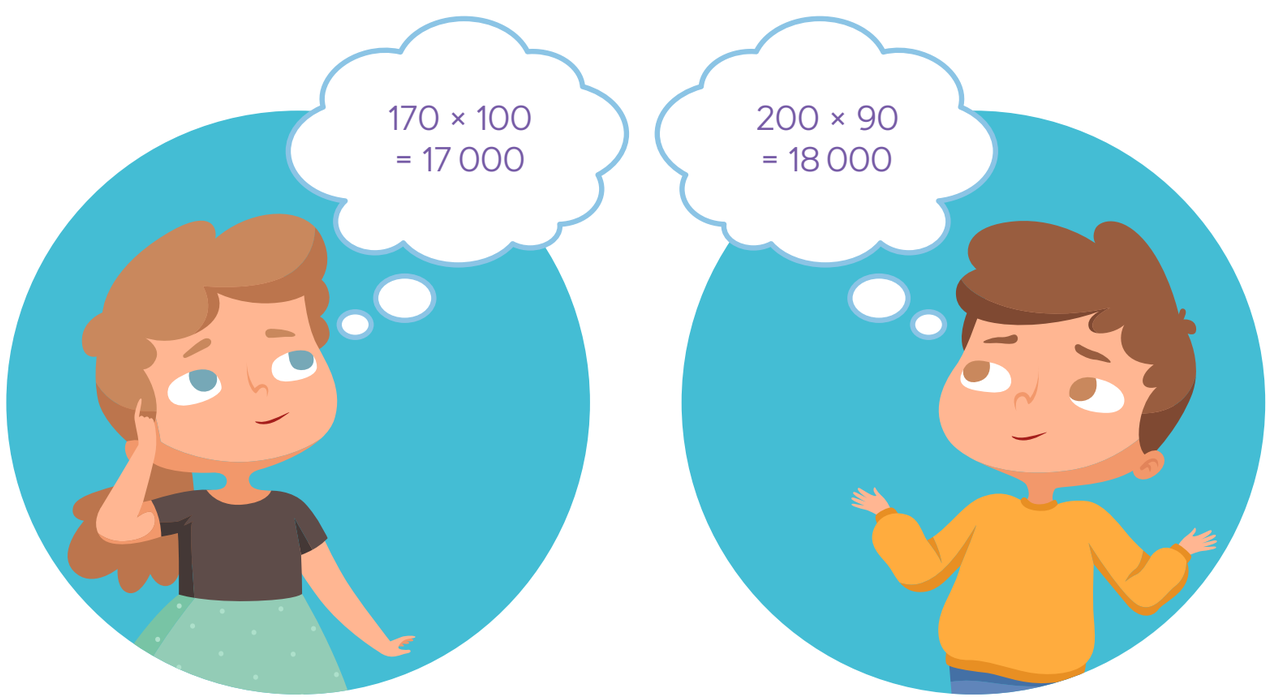
180 ÷ 30 = 6

Estimated answer is 6

The exact answer is 5.75

Kiera calculates 174 × 94 and gets 163 556

Callum and Hannah both estimate the answer to check if she is correct.



Both estimates are a lot smaller than Kiera's answer, so she must have made a mistake.

The exact answer is 16 356 – Kiera included an extra 5 when she wrote down her answer.

There is usually more than one way to estimate the answer to a calculation.

Choose the one that you find easiest to calculate.

Level 4

Estimate answers to calculations and approximate by rounding.

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Rewarding Learning

Estimating answers in real situations

People working in some jobs use estimation every day – joiners, builders, shopkeepers, gardeners and many more.

We also use estimation in lots of everyday situations – shopping, baking, DIY, budgeting or time management.

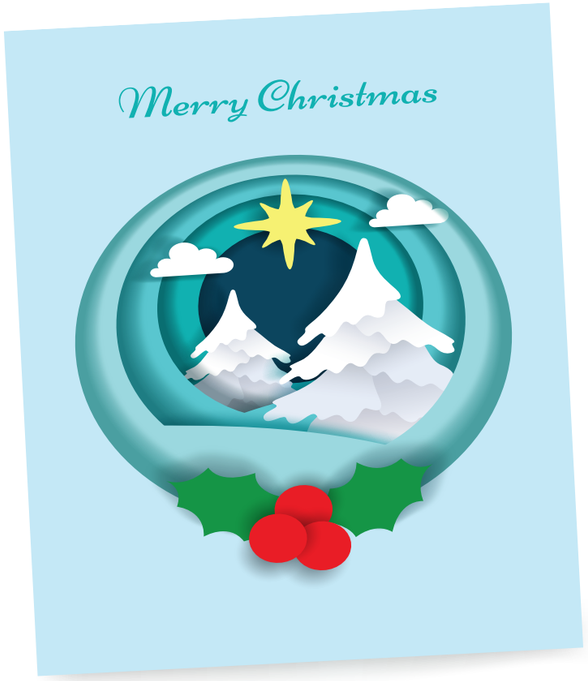
Ryan is making Christmas cards. He estimates that it takes him 4 minutes and 15 seconds to make one card. He has 18 more cards to make.

Estimate how long it will take him to finish.

It takes about 4 minutes for each card and Ryan has approximately 20 cards to make.

20 × 4 = 80

It will take Ryan approximately 80 minutes, or 1 hour 20 minutes, to finish.



Dan has £40 and wants to buy items costing £3.99, £18.49, £7.49 and £11.35

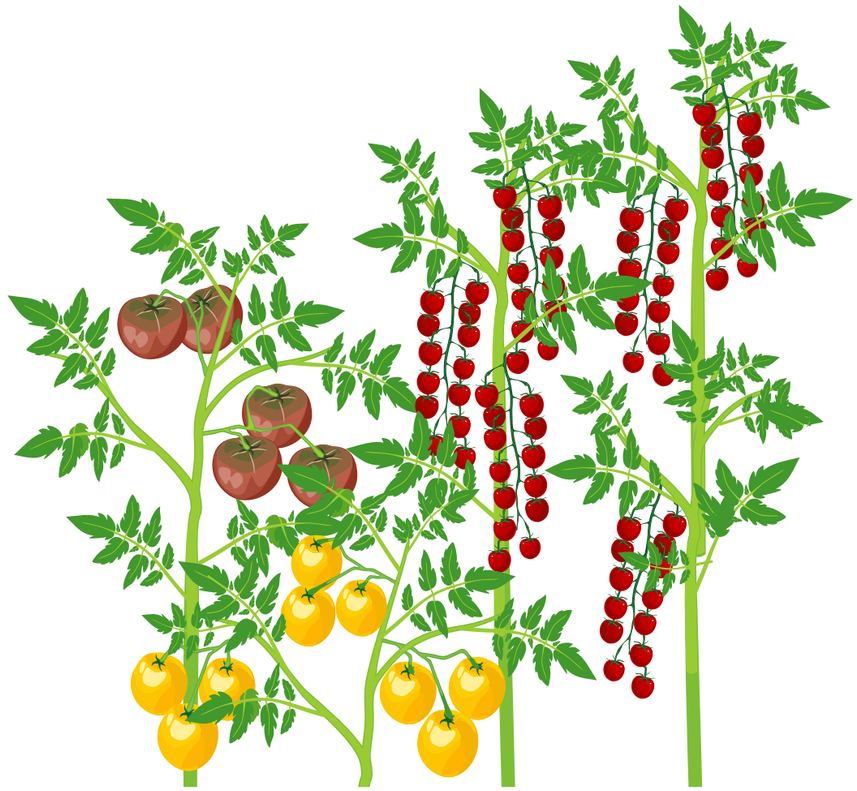
He estimates how much the items cost by rounding the prices to the nearest £.

£4 + £18 + £7 + £11 = £40

Dan thinks he has enough money, but realises when he gets to the checkout that the items actually cost £41.32

Dan should have **rounded up** to the next pound
£4 + £19 + £8 + £12 = £43

This estimate is more than £40, which would have warned Dan that he probably did not have enough money.



Ruby has planted 21 tomato plants. The garden centre claims that each plant will produce 48 tomatoes on average.

Estimate how many tomatoes Ruby will get from her tomato plants.

21 is very close to 20 and 48 is almost 50

Use 20 × 50

20 × 50 = 1000

Ruby can expect around 1000 tomatoes from her plants.

Level 4

Estimate answers to calculations and approximate by rounding.

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