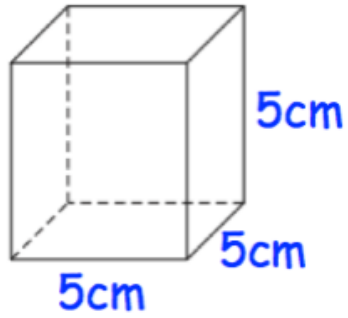
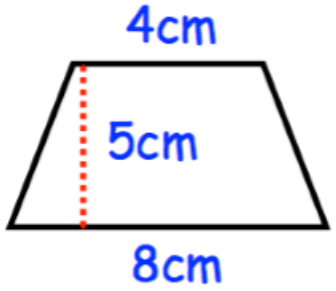
Starter

1. Work out the volume of the cube.
   State the units of your answer.



2. Calculate the area of the trapezium



3. Jam is made from sugar and strawberries in the ratio 3 : 5.

   A jar contains 150g of sugar.

a) How many grams of strawberries are in the jar?

b) How many grams of jam are in the jar?

4. James has 5 cards, each with a number written on it.

The median is 5.
The mode is 3.
The range is 8.
All numbers are odd.

Write down a possible set of numbers James could have.

Estimating/Rounding

- Approximate by rounding to a whole number or to one or two decimal places

- Estimate answers to calculations using fractions and decimals

Recap

Declan won £6000 in a competition.
He invests $\frac{2}{5}$ of the money.

How much money did Declan invest?

Katie has £1200.

She gives $\frac{1}{3}$ of the money to her sister.

Then Katie gives $\frac{1}{4}$ the remaining money to her brother.

How much money does Katie have left?

Rounding to nearest whole number, 10, 100, 1000

These are the nicest types of rounding questions, and so long as you have your brain switched on, you shouldn't get too many of them wrong. But don't get cocky, as you can easily make mistakes!

Remember: the size of your rounded number should be a similar size to the number in the question, and you must use zeros to help you with this

Round to the nearest whole number & 10

Example 1

Round 3.825 to the nearest whole number

3. 8 2 5

1. Our **Key Digit** is always the degree of accuracy the question asks for, which in this case is whole numbers, so we need the 3.

2. The unwanted digit to the right of it is 8, which is definitely **more than 5**, so we add one to our Key Digit.

3. So, to the nearest whole number, our answer is:

4

Example 2

Round 3,999 to the nearest ten

3 9 9 9

1. We want the nearest ten, so the **Key Digit** must be the 9 in the tens column

2. The unwanted digit to the right of it is a 9, so **we add one on**, but we then need to add one on the next 9, and then the 3!

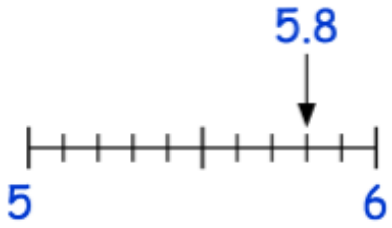
3. So, to the nearest ten, our answer is:

4,000

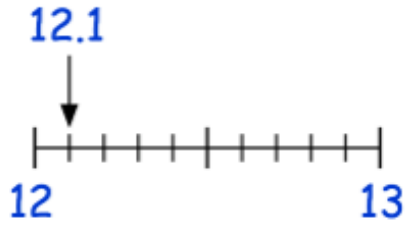
Rounding to nearest whole number

Question 1: Round each of the numbers below to the nearest whole number.

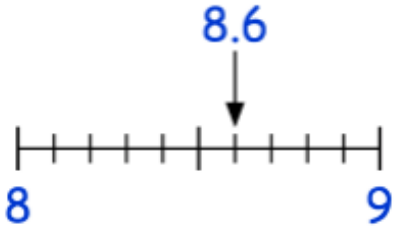
(a) 5.8



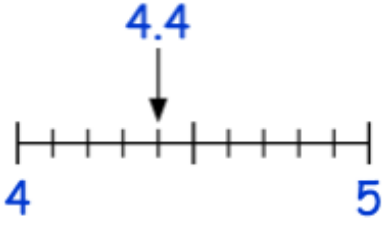
(b) 12.1



(c) 8.6



(d) 4.4



Question 2: Round each of the following numbers to the nearest whole number.

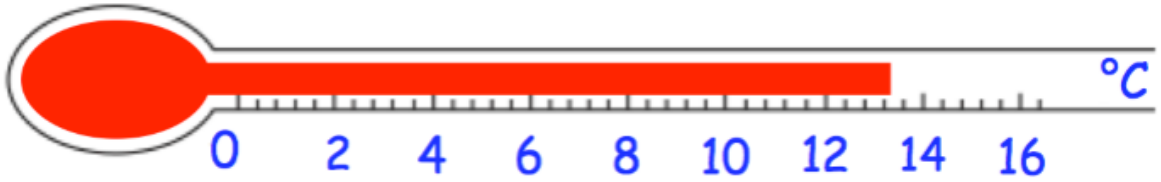
(a) 7.2 (b) 1.9 (c) 14.3 (d) 9.4 (e) 27.8 (f) 19.1 (g) 50.6

(h) 154.7 (i) 200.5 (j) 334.6 (k) 99.9 (l) 840.4 (m) 1981.6 (n) 245.3

Rounding to nearest whole number – Problem solving

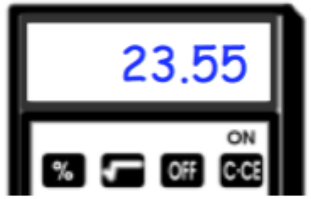
Question 1: A cupcake contains 4.6g of protein.
Round 4.6g to the nearest whole number.

Question 2: The thermometer shows the temperature in a town.



(a) Write down the temperature
(b) Round the temperature to the nearest degree celsius.

Question 3: Georgia has divided 2355 by a number on her calculator
The calculator shows the answer.



(a) What number did Georgia divide 2355 by?
(b) Round her answer to the nearest integer

Rounding to nearest whole number – Problem solving

Question 4: Derek wants to round 8 hours and 45 minutes to the nearest hour.
He says the answer is 8 because 8.45 rounds to 8.
Explain why Derek is wrong.

Question 5: Jurgen has rounded a number to the nearest whole number.
His answer was 600.
Write down 5 different possible numbers that he could have rounded.

Round to the nearest 100 and 1000

Example 1

Round 32,825.2 to the nearest hundred

3 2 8 2 5 . 2

1. We want the nearest hundred, so stick the ring around the digit in the hundreds column, which is the 8.

2. The unwanted digit to the right of it is a 2, which is **less than 5**, so we leave our Key Digit alone.

3. So, to the nearest hundred, our answer is:

32,800

Example 2

Round 4,365,901 to the nearest thousand

4 3 6 5 9 0 1

1. We want the nearest thousand, so our **Key Digit** must be the number that represents the thousands which is the 5

2. The unwanted digit to the right of it is 9, which is definitely **more than 5**, so we add one to our Key Digit.

3. So, to the nearest whole number, our answer is:

4,365,000

Rounding to 1 dp & 2 dp

Example 1

Round 5.639 to 1dp

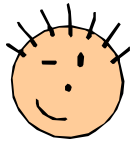
5 . 6 3 9

1. We start by putting a ring around our **Key Digit.** Now the question has asked for 1 decimal place, so our key digit is the 6, as it occupies the 1st decimal place

2. Next we look at the digit to the right to it – the unwanted number 3. It is **less than 5**, so we leave the key digit alone.

3. So, to one decimal place, our answer is:

5.6



Example 2

Round 12.0482 to 2dp

1 2 . 0 4 8 2

1. This time the **Key Digit** is in the 2nd decimal place, which makes it the 4

2. The unwanted digit to the right of it is an 8, which is definitely **5 or above**, so we must add one onto our Key Digit

3. So, to two decimal places, our answer is:

12.05

Rounding to 10, 100 and 1000

Question 1: Round the following numbers to the nearest 10

(a) 95 (b) 54 (c) 502 (d) 993 (e) 6036 (f) 29234

(g) 14.7 (h) 231.8 (i) 185.3 (j) 201.5 (k) 141.97 (l) 10009.02

Question 2: Round the following numbers to the nearest 100

(a) 540 (b) 495 (c) 7420 (d) 56862 (e) 13668 (f) 124346

(g) 149.7 (h) 2378.38 (i) 44938.3 (j) 25141.49 (k) 1995.455 (l) 51009.02

Question 3: Round the following numbers to the nearest 1000

(a) 4945 (b) 9442 (c) 9550 (d) 9499 (e) 9934 (f) 7409

(g) 48358 (h) 56187 (i) 123940 (j) 293482 (k) 231184 (l) 563921

Rounding to 10, 100 and 1000 – Problems solving

Question 1: 645 people attend a concert. Round this to the nearest 10.

Question 2: The number of beads in a jar is 50 to the nearest ten.
(a) What is the minimum possible number of beads in the jar?
(b) What is the maximum possible number of beads in the jar?

Question 3: The cost of a laptop is £1348. Round this to the nearest £100.

Question 4: The number of students at a school in 1200 to the nearest 100.
What is the maximum possible number of students at the school?

Question 5: The population of a city is 85,398. Round this to the nearest thousand.

Question 6: The value of a car is £7000 to the nearest thousand pounds.
(a) What is the least possible value of the car?
(b) What is the greatest possible value of the car?

Rounding to 1dp and 2 dp

Question 1: Round each of the following numbers to 1 decimal place.

(a) 4.82 (b) 6.19 (c) 10.63 (d) 21.41 (e) 3.14 (f) 48.18

(g) 29.26 (h) 80.85 (i) 0.43 (j) 248.38 (k) 637.51 (l) 9.99

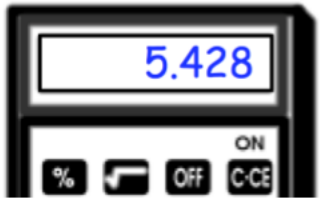
Question 2: Round each of the numbers below to decimal places.

(a) 3.487 (b) 2.613 (c) 1.984 (d) 10.046 (e) 8.155 (f) 19.367

(g) 3.141 (h) 6.0698 (i) 4.26317 (j) 93.46197

Rounding to 1dp and 2 dp – Problems solving

Question 1: Walter has worked out a calculation on a calculator
Shown on the calculator is the answer.
(a) Round the answer to one decimal place.
(b) Round the answer to two decimal places.



Question 2: Daniel has been asked to round 1.725 to one decimal place.
His answer is 172.5.
Explain Daniel's mistake.

Question 3: Nicole has rounded a number to one decimal place.
Her answer is 9.2
Write down 10 different possible numbers that she could have rounded.

Estimating/Rounding

$$\frac{6.0602^2}{3.1092 \times 5.95}$$

Now, you would need to be a bit of a freak to do this in your head, but if you were to round each number to the **nearest whole number** then you get:

$$\frac{6^2}{3 \times 6} \rightarrow \frac{36}{3 \times 6} \rightarrow \frac{36}{18} \rightarrow 2$$

And if you now use our **BODMAS** skills, you should be able to say:

Estimating/Rounding

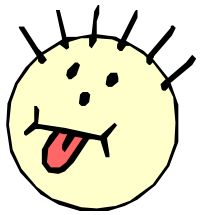
The actual answer on the calculator is pretty close: 1.98521838…

So, if we want to sound clever, we can say that:

$$\frac{6.0602^2}{3.1092 \times 5.95} \approx 2$$

Where the funny sign means: "approximately equal to"

So, always look out for ways to use your rounding skills to turn tricky looking sums into pretty easy ones!



Estimating/Rounding

Question 1: Estimate 2.9 x 401

(2)

Question 2: Work out an estimate for the value of 7.1 x 97

(2)

Question 3: Estimate the value of $\frac{908}{2.03}$

(2)

Question 4: Work out an estimate for $\frac{58.8 \times 20.9}{101.4}$

(3)

Estimating/Rounding – Problems solving

Question 1: Stuart buys 72 packets of crisps at 19p each.
Estimate the total cost.

(2)

Question 2: Estimate how many books costing £7.05 can be bought for £424.

(2)

Question 3: Dennis gets paid £8.21 per hour he works.
Each week Dennis works 41 hours.
(a) Work out an estimate for the amount Dennis gets paid in a week.

(2)

(b) Is the answer to part (a) an underestimate or an overestimate?
Give a reason for your answer.

(1)