

**As outcomes, Year 8 pupils should, for example:**

**Use the context of a problem to check whether an answer is sensible.** For example:

- When calculating a mean, check that it is within the range of the data. For example, the mean of 34, 21, 65, 89, 43, 29, 76, 79 must lie between 21 and 89.
- When using measurements, check the magnitude of the answer in the context of the problem.

Discuss questions such as:

- Will the answer to  $75 \div 0.9$  be smaller or larger than 75?
- A class of pupils was asked whether they preferred pop or classical music. They said:
 

Prefer classical	21%
Prefer pop	67%
Don't know	13%

All results are correct to the nearest per cent but the three percentages add to 101%.  
Is this possible?
- Without using a calculator, pick out a possible answer to the calculation. Explain your choice.
 

a.  $47 \times 59$   
3443 or 2773 or 2887

b.  $456 \times 0.48$   
218.9 or 636 or 322.7

**Use rounding to approximate and judge whether the answer is the right order of magnitude.** For example:

- $\sqrt{7}$  lies between  $\sqrt{4}$  and  $\sqrt{9}$   
i.e. between 2 and 3
- Round to the nearest ten, e.g.  
 $\frac{62}{10}$  is approximately  $\frac{60}{10} = 6$ .
- Round to 'nice' numbers, e.g.  
 $\frac{62}{9}$  is approximately  $\frac{63}{9} = 7$ .

**Check by doing the inverse operation.**

For example, use a **calculator** to check:

- $\sqrt{7} = 2.64575\dots$  with  $(2.64575)^2$

[Link to making estimates and approximations of calculations \(pages 102–3\), and checking the solution of an equation by substitution \(pages 122–5\).](#)

**As outcomes, Year 9 pupils should, for example:**

**Use the context of a problem to check whether an answer is sensible.**

Discuss questions such as:

- The price of an audio system is reduced by 10%. Two months later the price increases by 10%. It does not return to its original price. Is this possible?
- Without using a calculator, pick out a possible answer to the calculation from the three possible answers given.
 

a.  $(398)^2$   
158 404 or 6344 or 161484

b.  $365 \div 0.43$   
849 or 84.9 or 157

c.  $67 \div 0.083$   
87.2 or 8.72 or 807.2

Explain your choice in each case.
- Can a square have an exact area of  $32 \text{ cm}^2$ ?  
What about a circle?

[Link to making estimates and approximations of calculations \(pages 102–3\), checking the solution of an equation by substitution \(pages 122–5\), and checking that the sum of probabilities for all outcomes is 1 \(pages 278–9\).](#)