Percentage of an amount

Diagnostic question

Find 30% of 90

A	30	*The pupil maybe working out (90÷30) x 100 and rounded to 0.3. They may not understand percent means out of 100.*
B	27	*This is the correct answer.*
C	9	*They have worked out 10% but not multiplied to get 30%.*
D	117	*The pupil has increased 90 by 30%.*

I think this because...

Back up your answer with some working or a reason in your exercise book.

A good understanding of what percentage really means is important for all these topics. You can break down the word 'per' meaning 'out of' and 'cent' meaning '100'. Percentages allow us to compare different amounts more easily.

Worked example

5% of 60

10% of 60 = 60 ÷ 10 = 6

5% = 10% ÷ 2

= 6÷2

=3

Your turn

5% of 20

10% of 20 = 20 ÷ 10 = 2

5% = 10% ÷ 2

= 2÷2

=1

Intelligent practice

Find

1) 10% of 40	*1) 4*
2) 5% of 40	*2) 2*
3) 15% of 40	*3) 6*
4) 30% of 40	*4) 12*
5) 30% of 80	*5) 24*
6) 3% of 80	*6) 2.4*
7) 30% of 8	*7) 2.4*
8) 300% of 8	*8) 24*

9) 8% of 300	*9) 24*
10) 21% of 270	*10) 56.7*
11) 121% of 270	*11) 326.7*
12) 221% of 270	*12) 596.7*
13) 221% of 20	*13) 44.2*
14) 79% of 20	*14) 15.8*
15) 158% of 20	*15) 31.6*
16) 1.5% of 20	*16) 0.3*

Percentage increase and decrease (non-calculator)

Diagnostic question

A computer costing £500 is to have its price increased by 25%. What is the new price?

A	£550	*The pupil may not understand how to work out a percentage of an amount correctly.*
B	£525	*The pupil may have assumed 25% is £25 and have added it on.*
C	£125	*They've worked out the amount it increases by but not the new price.*
D	£625	*This is the correct answer.*

I think this because…

Back up your answer with some working or a reason in your exercise book.

These questions are relatively straight forward for pupils. They often misread the question. Encouraging them to check their answer is key. They may also always assume an increase and not check if it is a decrease question.

Worked example

Increase £300 by 35%

10% of 300 =

300 ÷ 10 = 30

5% of 300 = 10% ÷ 2

= 30 ÷ 2 = 15

30% = 10% x 3 = 90

35% = 5% + 30%

= 15 + 90 = 105

Increase so add

300+105 = £405

Your turn

Increase £200 by 45%

10% of 200 =

200 ÷ 10 = 20

5% of 200 = 10% ÷ 2

= 20 ÷ 2 = 10

40% = 10% x 4 = 80

45% = 5% + 40%

= 10 + 80 = 90

Increase so add

200+90 = £290

Intelligent practice

Solve

1) Increase £400 by 20%   *1) £480*

2) Increase £400 by 40%   *2) £560*

3) Increase £400 by 10%   *3) £440*

4) Increase £400 by 5%   *4) £420*

5) Increase £400 by 1%   *5) £404*

6) Increase £40 by 1%   *6) £40.40*

7) Increase £40 by 10%   *7) £44*

8) Decrease £40 by 10%   *8) £36*

9) Decrease £40 by 30%   *9) £28*

10) Increase £80 by 5%   *10) £84*

11) Increase £80 by 1%   *11) £80.80*

12) Increase £80 by 0.5%   *12) £80.40*