

Year 5 and 6 Calculation Methods


Addition




add more plus
increase total
sum altogether

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Subtraction



subtract minus
less take away
decrease leave
fewer difference

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Multiplication



multiply lots of
times groups of
multiplied by array
repeated product
addition

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Division



divide remainder
share share equally
groups of divided by
repeated each
subtraction

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Addition & Subtraction

Addition:

$$\begin{array}{r} 4239.7 \\ + 2643.5 \\ \hline 6883.2 \end{array}$$

1. Line up the digits and write above each other - be careful of decimals.
2. Add - starting with the smallest place value.
3. Place any 'tens' below the next column.

Subtraction:

$$\begin{array}{r} 32.710 \\ - 1.62 \\ \hline 31.08 \end{array}$$

1. Line up the digits (or decimal points) - add a 0 in places in decimals without one.
2. Start with smallest place value and subtract top from bottom.
3. Exchange from the next column if you can't subtract.

NC expectations (Y5 and Y6 - 4 digits or more) (decimals up to 2d.p.)

Multiplication

Compact method for when multiplying by 1-digit
Long multiplication for when multiplying by 2-digits

Year 5 and 6.

Multiplication (Use this for up to 4d x 1d) (This is for up to 4d x 2d)

Compact formal method.

$$\begin{array}{r} 2385 \\ \times 6 \\ \hline 14310 \\ 4310 \\ \hline 14310 \end{array}$$

1. Multiply each digit by 6.
2. Write below.
3. Place any 'tens' under the following column.

or.

Long Multiplication.

$$\begin{array}{r} 292 \\ \times 34 \\ \hline 1168 \quad (292 \times 4) \\ 8760 \quad (292 \times 30) \\ \hline 9928 \end{array}$$

1. Multiply each digit by the ones on the first row.
2. Multiply each digit by the tens on the 2nd row. Remember there will be a 0 in the ones place.
3. Add the 2 rows together.

NC expectations (Y5 & Y6 - up to 4d x 2d)

Multiply decimals with integers -Y6 (up to 2d.p.)

Multiply decimals with integers.

$$\begin{array}{r} 2.38 \\ \times 6 \\ \hline 14.28 \end{array}$$

1. Set this calculation out the same as the compact multiplication - but with the decimal point!
2. Multiply as normal - remember the decimal point in the answer!

BODMAS - Y6

BODMAS

(32 - 6) x 9

26 x 9

234

Brackets
Orders
Division
Multiplication
Addition
Subtraction

Squared and Cubed numbers - Y5

Squared and Cubed numbers.

$3^2 = 3 \times 3 = 9$

Squared numbers is the number multiplied by itself. eg. $3 \times 3 = 9$

$3^3 = 3 \times 3 \times 3 = 27$

1. Cubed numbers are when the number is multiplied by itself and then itself again. eg. $3 \times 3 = 9$ then $\times 3 = 27$.

Subtracting decimals -Y5 & Y6

Subtracting decimals

52 - 26.96

$$\begin{array}{r} 52.00 \\ - 26.96 \\ \hline 25.04 \end{array}$$

① Line up the decimal places.

② Add zeros after the decimal place where needed eg. 52.00

③ Subtract as usual.

Add
Sub

Multiplying and dividing by 10, 100 and 1000 -Y4 upwards

Multiplying and dividing by 10, 100 and 1000.

T	H	T	O	.	T	H	T	th	1000
3	9	0	.						
1	4	.	6						
					1	4	6		

① Use a PV grid when \times and \div by 10, 100 or 1000.

② Move the digits left for \times and right for \div .

③ Move them the same number of spaces as there are zeros in the number. eg. 10 \rightarrow 1 more.

eg. $3.9 \times 100 = 390$

$1.46 \div 10 = 1.46$

Division

Division

Short division (bus stop).

$$3427 \div 8$$

$$\begin{array}{r} 0428 \text{ r } 3 \\ 8 \overline{) 3427} \\ \underline{32} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

or.

Long division. (Use when dividing by larger, awkward numbers.)

$$2244 \div 17$$

$$\begin{array}{r} 0132 \\ 17 \overline{) 2244} \\ \underline{17} \\ 54 \\ \underline{51} \\ 34 \\ \underline{34} \\ 0 \end{array}$$

1. Write the numbers in the 'bus stop'.
2. Start with the greater place value and think 'how many groups of 8 can I make from this?'
3. Write the groups above and carry over any left over.

1. Draw the bus stop.
2. See how many groups of the divisor can be made from the largest place value.
3. Use the space below to subtract the amount used and see how much gets passed on.

NC expectations (Y5 - up to $4d \div 1d$) (Y6 - up to $4d \div 2d$)

Fractions calculations

Multiplying 2 fractions -Y6

Multiplying fractions.

$$\frac{2}{5} \times \frac{3}{6} = \frac{6}{30} = \frac{1}{5}$$

- ① Multiply the numerators and denominators.
- ② Simplify the fraction.

Multiplying fractions with integers

- Y5 (with images to support) - and Y6

Multiply fractions and integers.

$$4 \frac{2}{5} \times 3 = 12 \frac{6}{5} = 13 \frac{1}{5}$$

1. Multiply the whole number and the numerator with the integer.
2. If you have an improper fraction add this to the whole.

Adding and Subtracting Fractions

- Y5 (multiples of the same number) - Y6

Adding and Subtracting fractions.

$$\frac{3}{9} + \frac{5}{9} = \frac{8}{9}$$

If the denominators are the same, you can simply add or subtract the numerators.

① When you have different denominators, you must find a common denominator.

$$\frac{3}{4} - \frac{1}{5} = \frac{15}{20} - \frac{4}{20} = \frac{11}{20}$$

- ② Multiply the whole fraction to give the same denominator or.
- ③ When you have a common denominator you can add and subtract.

Dividing fractions by integers - Y6

Dividing fractions by whole numbers.

$$\frac{3}{5} \div 4 = \frac{3}{20}$$

- ① To divide the fractions you multiply the denominator with the whole number. eg 4×5 .
- ② Simplify if needed.

Fractions of amounts - Y5

Fractions of amounts.

$\times \frac{4}{9}$ of 1800

\div

1. Divide by the denominator. eg. $1800 \div 9 = 200$
2. Multiply by the numerator. eg. $200 \times 4 = 800$

Percentages and Decimals

Finding percentages of amounts - Y6

Finding percentages of amounts.

35% of 800

$$\begin{array}{r} 10\% = 80 \\ + 30\% = 240 \\ \hline 35\% = 280 \end{array}$$

48% of 780

$$\begin{array}{r} 10\% = 78 \\ 40\% = 312 \\ 1\% = 7.8 \\ 8\% = 62.4 \\ \hline 48\% = 374.4 \end{array}$$

- ① First find 10%. eg 80
- ② Multiply this to find 30%. eg 80×3
- ③ Half 10% to find 5%. eg $80 \div 2 = 40$
- ④ When finding something like 48%, find 1% by dividing the 10% then multiply by 8. eg. 7.8×8

BODMAS

$(32 - 6) \times 9$	Brackets
26×9	Orders
	Division