

ARITHMETIC KS2

LPPS Calculation Methods 2025

Formation

F1 to Y6

1)

1

2

3

4

5

6

7

8

9

0

+

-

x

÷

=

<

>

²

³

%

Number and bracket and one square space.

Number formation.

Symbols.

Forming numbers and symbols

$$707 + 1,818 = 2,525$$

$$\text{or } 2525$$

Optional comma on four-digit numbers.

Line up place values.

Exchange values using clear figures.

Addition in place values with and without exchanging a place value.

$$\begin{array}{r}
 1,818 \\
 + 707 \\
 \hline
 2,525 \\
 1 \quad 1
 \end{array}$$

$$2.7 + 3.014 = 5.714$$

$$\begin{array}{r} 3.014 \\ + 2.700 \\ \hline 5.714 \end{array}$$

Put the place holder zeros in first.

Line up decimal points. Remember to put . in the answer before you start calculating.

Addition in with decimals

$$345 - 60 = 285$$

$$\begin{array}{r} 2 \\ \cancel{3} \ 14 \ 5 \\ - \quad 6 \ 0 \\ \hline 2 \ 8 \ 5 \end{array}$$

Clear exchange figures so you can check easily at the end.

Inverse operation check by adding the answer to the value being subtracted.

Subtraction with exchange

Y4 to Y6

$$37.8 - 14.671 =$$

$$\begin{array}{r} 37.8^7 \quad \overset{1}{\cancel{0}}^9 \quad \overset{1}{0} \\ - 14.671 \\ \hline 23.129 \end{array}$$

Put the place holder zeros in to give the number the same number of digits to make it easier to subtract.

Line up decimal points. Remember to put . in the answer before you start calculating.

Subtraction with decimals

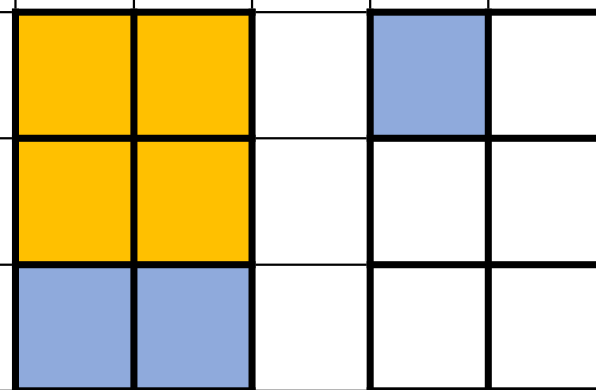
$$\frac{4}{6} + \frac{3}{6} = \frac{7}{6} = 1 \frac{1}{6}$$

Mixed numbers

Fractions of the same denominator can be added or subtracted with no conversion.

Addition of fractions with same denominators

$$\frac{6}{6} = 1 + \frac{1}{6}$$

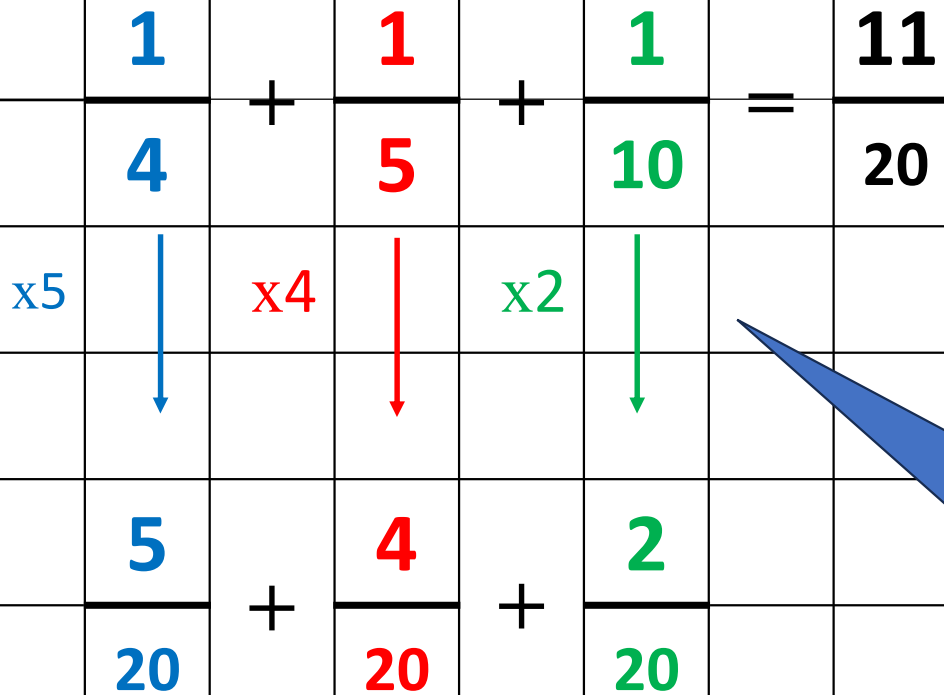


Y3 to Y6

Addition of fractions with different denominators

$$\frac{1}{4} + \frac{1}{5} + \frac{1}{10} = \frac{11}{20}$$

x5 x4 x2

$$\frac{5}{20} + \frac{4}{20} + \frac{2}{20}$$


Find factors that create equivalent fractions that have the same denominator.

Y5 to Y6

$$\frac{3}{4} - \frac{3}{8} = \frac{3}{8}$$

x2



$$\frac{6}{8} - \frac{3}{8} = \frac{3}{8}$$

Only fractions which share the same denominator can be added or subtracted. Use times tables to find an equivalent. Set it out in line below with an arrow and the multiplier for the numerator and denominator.

Subtraction of fractions with different denominators

Y5 to Y6



$$\frac{3}{4} = \frac{6}{8}$$

$$\frac{2}{6} - \frac{1}{8} = \frac{5}{24}$$

x4 ↓ x3 ↓

$$\frac{8}{24} - \frac{3}{24}$$

Subtracting fractions with different denominators - challenging

Find common multiples using times tables lists.

x 6

6
12
18
24

(x4) 2 4

x 8

8
16
24

(x3)

Y5 to Y6

Multiplying fractions

Y6

$$\frac{4}{6} \times \frac{3}{5} = \frac{12}{30}$$

$\frac{3}{5}$

Only simplify if asked to.

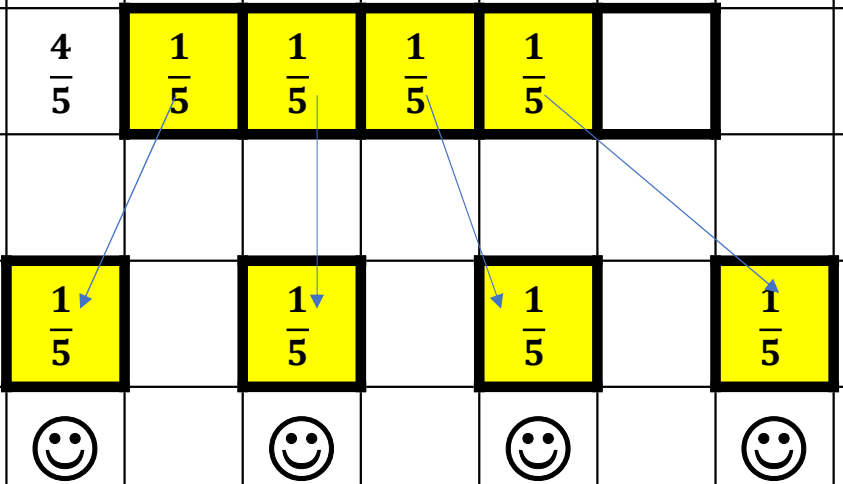
The array shows a width of $\frac{3}{5}$ and a length of $\frac{4}{6}$ multiplied to create an area of $\frac{12}{30}$.

$$\frac{4}{5} \div 4 = \frac{1}{5}$$

Dividing fractions

Y6

Treat fractions like objects. I have 4 objects to share with 4 people. They will get one object each. The objects are fifths. They get one fifth each.



Dividing fractions with a numerator that needs conversion

$$\frac{5}{8} \div 2 = \frac{5}{16}$$

x2

$$\frac{10}{16}$$

Treat fractions like objects. I have 5 objects to share with 2 people. I have to create an equivalent fraction that can be shared with two people. Multiply the numerator and denominator by 2. They will get 5 objects each. The objects are 16ths. They get 5 16ths each.

Y6

Adding mixed numbers
with conversions

$$2 \frac{1}{3} + \frac{5}{6} = 3 \frac{1}{6}$$

x2



Create an equivalent to add the two fractions.

$$2 \frac{2}{6} + \frac{5}{6} = 2 \frac{7}{6} = 3 \frac{1}{6}$$

Y5 + Y6

Improper fraction $\frac{7}{6}$ is 1 whole and $\frac{1}{6}$

$$1\frac{1}{2} \times 57 = 85\frac{1}{2}$$



Break the task into 1 group of 57 and a half of 57. Add them.

$$1 \times 57 = 57$$

Y6

+

$$\frac{1}{2} \times 57 = 28\frac{1}{2}$$

Workings:

Multiplying mixed numbers

$$28\frac{1}{2}$$

$$+ 57$$

$$+ 28\frac{1}{2}$$

$$85\frac{1}{2}$$

$\frac{1}{2} \times 57$ is a half of 57.

$$50 + (36 \div 6) = 56$$

$$50 + 6$$

1) Identify the BIDMAS priority using a 'tray'.

2) Calculate. Work from left to right if there's two equal BIDMAS calculations.

1 B Brackets

2 I indices^{2 3}

3 D M
 division and multiplication have equal priority – work left to right

4 A S
 addition and subtraction have equal priority – work left to right

Order of operations

Y5 + Y6

		whole					part				part			
		1	1	5	9	-	1	0	0	=	1 ,	0	5	9

Place value
part / whole
calculations

3) Read the calculation back again to check you have done the correct number operation.

1) Identify the whole.

	1	0	5	9
+	1	0	0	
	1	1	5	9

2) Add the subtracted part back on to reach the whole again.

Y1 to Y6

Multiplying place values

$$30 \times 40 = 1,200$$

$$3 \times 10 \times 4 \times 10$$

$$3 \times 4 = 12$$

$$10 \times 10 = 100$$

$$12 \times 100 = 1,200$$

Turn 30×40 into factors to avoid long multiplication.

Y4 to Y6

$$2,345 \times 1,000 = 2,345,000$$

Y4 to Y6

Count how many place holders. (3)

← ← ← 2 3 4 5

$$2,345,000$$

Multiplying place values

Move each digit up the same number of places (3 places). Fill blanks with place holder zeros.

Make sure the place values line up at the same starting point.

Multiplying decimals using
place values

$$0.04 \times 10 = 0.4$$

0.04

0.04 ←

1) Draw decimal points first.
Line them up.

2) Count how many place holders. (1)

3) Write the value you are multiplying.

4) Move each digit down the same
number of places left (1 place).

Y5 + Y6

$$0.9 \times 200 = 180$$

Multiplying decimals using factorising and place values

$$0.9 \times 100 \times 2$$

Turn 200 into factors to help remove the decimal point.

$$0.9 \times 100 = 90$$

$$90 \times 2 = 180$$

Y5 + Y6

Short multiplication

$$33 \times 8 = 264$$

	3	3	
x		8	
<u>2</u>	<u>6</u>	<u>4</u>	
	2		

Y3 to Y6

Underline the answer and allow space on the left for it being a larger value than in the question.

Long multiplication

				4	7	8	1											
			x			2	3											
			1	4 ²	3 ²	4	3	←	3	x	4	7	8	1			ones	
	+		9 ¹	5 ¹	6	2	0	←	2	0	x	4	7	8	1			tens
			1	0	9	9	6	3	←	T	o	t	a	l				

Y5 to Y6

20 = 10 x 2. Start by multiplying this line by 10, moving all values up one place. Then multiply by 2.

Dividing by place values

$$0.04 \div 10 = 0.004$$

$$\begin{array}{r} 0.04 \rightarrow \\ 0.004 \end{array}$$

1) Draw decimal points first.
Line them up.

2) Count how many place holders. (1)

3) Write the value you are dividing.

4) Move each digit down the same
number of places right (1 place).

Y5 to Y6

$$581 \div 7 = 83$$

	0	8	3
7	5	⁵ 8	² 1

Write out your
x7 if you are not
confident.
Number each
one.

- 1) 7
- 2) 14
- 3) 21 ←
- 4) 28
- 5) 35
- 6) 42
- 7) 49
- 8) 56 ←

Y3 to Y6

Short division

Long division

$$\begin{array}{r}
 17 \overline{) 176} \\
 \underline{17} \\
 0
 \end{array}$$

$$\begin{array}{r}
 17 \overline{) 176} \\
 \underline{17} \\
 0 \\
 \underline{0} \\
 0
 \end{array}$$

Subtract the nearest multiple of 17 to find a remainder.

Y6

$$\begin{array}{r}
 1) \quad 17 \\
 + \quad 17 \\
 \hline
 2) \quad 34 \leftarrow 34 \\
 + \quad 17 \\
 \hline
 3) \quad 51 \\
 + \quad 17 \\
 \hline
 4) \quad 68 \leftarrow 71 \\
 + \quad 17 \\
 \hline
 5) \quad 85
 \end{array}$$

Write out the x17 tables by adding on one 17 at a time, showing all working. Go up to at least 17x5. Number each calculation.

Y6

5

9

~~2~~

~~2~~

4

2

-

1

7

7

↓

0

4

7

2

-

4

7

2

0

0

0

1)

5

9

+

5

9

2)

1

1₁

8

+

5

9

3)

1

7₁

7

+

5

9

4)

2₁

3₁

6

+

5

9

5)

2

9₁

5

+

5

9

6)

3₁

5₁

4

+

5

9

7)

4₁

1₁

3

+

5

9

8)

4

7₁

2

→

←

224

Subtract the nearest multiple of 59 to find a remainder.

Write out the x59 tables by adding on one 59. Go up to at least 59x5, further as needed. Number each calculation.

Long division (challenging)

Y5 to Y6

Know the equivalent fractions and percentages to choose a division method:

$50\% = \frac{1}{2}$ = divide the amount by 2

$25\% = \frac{1}{4}$ = divide the amount by 4

$75\% = \frac{3}{4}$ = divide the amount by 4 (to get $\frac{1}{4}$ then x the answer by 3 to get $\frac{3}{4}$)

10% = one tenth = divide the amount by 10

1% = one hundredth = divide the amount by 100

Percentages using
equivalence and
division

Use the facts on the left
to build up % values:

To find 60%, add 10% to
50%.

To find 35%, find 10% x3
plus half of 10%

4 5 % of 4 6 0 = 2 0 7

4 5 % = x 4 5 ÷ 1 0 0

4 6 0

x 4 5

2 3³ 0 0

1 8₂ 4 0 0

2 0 7 0 0 ÷ 1 0 0

1

Percentages using the long x method

Y5 to Y6

Percentages are values expressed as hundredths. 45% of something is the amount divided by 100 then multiplied by 45. Use long multiplying first, then divide the answer by 100 to make it a percentage.

7 % of 500 = 35

500 ÷ 100 = 5

5 x 7 = 35

Percentages using
the division by 100
method

Y6

Percentages are values expressed as hundredths. 7% of something is the amount divided by 100 then multiplied by 7. It's easier to divide 500 by 100 first, avoiding long multiplication.