

Long Division

LONG DIVISION

$$36923 \div 64 \quad (\text{Not as scary as it looks}).$$

1) Make multiples of the divisor (64) by partitioning and using repeated addition.

Partition into 60 and 4.

60	4	→	64
120	8	→	128
180	12	→	192
240	16	→	256
300	20	→	320
360	24	→	384
420	28	→	448
480	32	→	512
540	36	→	576
600	40	→	640

2) The basics of short division help.

$$\begin{array}{r} 005 \\ 64 \overline{) 36923} \end{array}$$

How many 64s in 3? 0
How many 64s in 36? 0
How many 64s in 369?
Check the list

There are 5.
The 6th multiple is 384
which is larger than 369.

3) Subtract the multiple below to find the remainder.

$$\begin{array}{r} 005 \\ 64 \overline{) 36923} \\ - 320 \\ \hline 049 \end{array}$$

4th multiple is 320.
Use column subtraction to find remainder.

4) Bring down the next digit to line up with the remainder.

$$\begin{array}{r} 005 \\ 64 \overline{) 36923} \\ - 320 \downarrow \\ \hline 0492 \end{array}$$

This makes 492

5) Repeat the process BUT now looking at how many 64s are in 492.

$$\begin{array}{r} 0057 \\ 64 \overline{) 36923} \\ - 320 \downarrow \\ \hline 492 \\ - 448 \downarrow \\ \hline 0443 \end{array}$$

There are 7. $7 \times 64 = 448$.
The 8th multiple is 512
which is too large.

Subtract multiple before (448)
Bring down next digit (3).

6) Repeat the process BUT now looking at how many 64s in 443.

$$\begin{array}{r}
 00576r59 \\
 64 \overline{) 38923} \\
 \underline{- 320} \\
 492 \\
 \underline{- 448} \\
 0343 \\
 \underline{- 384} \\
 059
 \end{array}$$

$$64 \times 6 = 384$$

$$64 \times 7 = 448$$

There are 6 64s in 443.

Subtract multiple below to find the remainder.

59 is the remainder.

$$36923 \div 64 = 576r59$$

Try these:

- 1) $65739 \div 54$
- 2) $38264 \div 23$
- 3) $57392 \div 37$
- 4) $57329 \div 66$
- 5) $98276 \div 48$
- 6) $46294 \div 73$
- 7) $57294 \div 35$
- 8) $86544 \div 68$