



Maths

Multiplication and Division



Division by Grouping



Aim

- I can divide larger numbers mentally by subtracting easy multiples.

Success Criteria

- I can partition numbers to make division easier.
- I can subtract multiples of 10.
- I can use multiplication facts to calculate the answer and find remainders.

Squares and Cubes



A **square** number is a number multiplied by itself, e.g. 3×3 or 4×4 .
It is written as 3^2 or 4^2 .

A **cubed** number is a number multiplied by itself and then multiplied by itself again, e.g. $3 \times 3 \times 3$ or $4 \times 4 \times 4$.
It is written as 3^3 or 4^3 .

How many square or cubed numbers can you find in the grid?

Write out the number sentence e.g.

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

Can you find a number that is both a square and a cubed number?

Squares and Cubes



49	4	64
1	12	64
27	25	8
81	16	36
9	125	5



= squared



= cubed

Multiples of Ten

Some multiplication tables and tables facts are really easy to remember.

How quickly can you do these?



1. $10 \times 8 =$

80

2. $4 \times 10 =$

40

3. $5 \times 10 =$

50

4. $10 \times 10 =$

100

5. $6 \times 10 =$

60

Why is multiplying by ten easy?

Dividing Using Multiples of Ten

We can use multiples of 10 to help us to calculate the answers to division problems mentally.

$$63 \div 3 = ?$$

This is beyond our multiplication tables knowledge, but we could use multiples of ten to help us.

Multiply the divisor by 10 – $3 \times 10 = 30$.

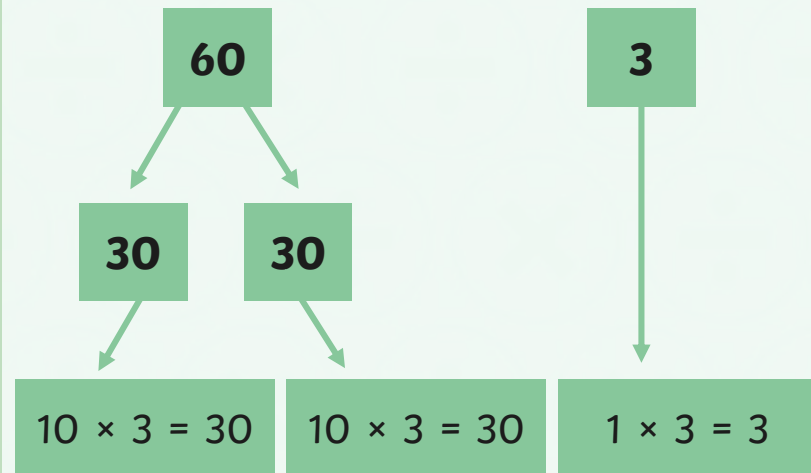
How many of these go into 63?

2 lots of 30 make 60, so $20 \times 3 = 60$ or $60 \div 3 = 20$.

This leaves us with 3.

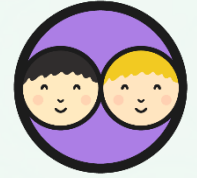
Next, we work out $3 \div 3 = 1$.

So, if $60 \div 3 = 20$ and $3 \div 3 = 1$, then $63 \div 3 = 21$.



So there are $10 + 10 + 1$ groups of 3 in 63. The answer is 21.

Work Together



$$92 \div 4 = ?$$

Multiply the divisor by 10 – $10 \times 4 = 40$.

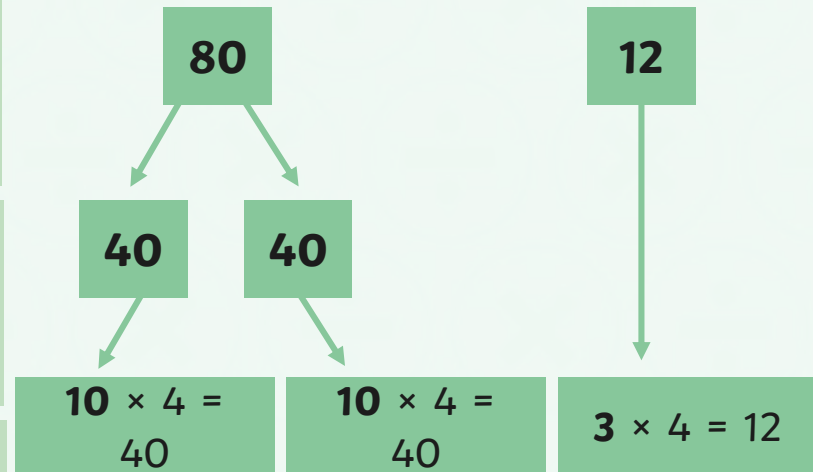
How many of these go into 92?

2 lots of 40 make 80, so $20 \times 4 = 80$ or $80 \div 4 = 20$.

This leaves us with 12.

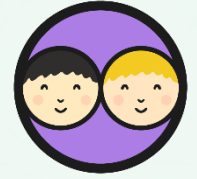
Next, we work out $12 \div 4 = 3$.

So, if $80 \div 4 = 20$ and $12 \div 4 = 3$, then $92 \div 4 = 23$.



So there are $10 + 10 + 3$ groups of 4 in 92. the answer is 23.

Now Try These



$$84 \div 4 =$$

$$20 \text{ groups of } 4 + 1 \text{ group of } 4 = 21$$

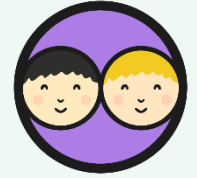
$$98 \div 7 =$$

$$10 \text{ groups of } 7 + 4 \text{ groups of } 7 = 14$$

$$96 \div 6 =$$

$$10 \text{ groups of } 6 + 6 \text{ groups of } 6 = 16$$

Remainders



$$41 \div 3 = ?$$

Calculate the multiple of 10.

$$3 \times 10 = 30.$$

How many of these go into 41? 1 leaving 11 left over.

How many 3s go into 11?
 $3 \times 3 = 9$ with 2 left over.

There are $10 + 3 = 13$ groups of 3, remainder 2.

Division By Grouping



Division By Grouping

I can divide larger numbers mentally by subtracting easy multiples.

1. $39 \div 3 =$ _____

First work out 10×3 .

$10 \times 3 =$ _____

Subtract the multiple of ten from 39. What is left? _____

How many 3s go into this number? _____

Add up the number of groups of 3 to get your answer: _____

2. Now try these:

a. $48 \div 3 =$ _____

b. $68 \div 4 =$ _____

c. $65 \div 5 =$ _____

d. $78 \div 6 =$ _____

e. $91 \div 7 =$ _____

3. Make up your own word problem in the box below to go with one of the number sentences in question 2.



Division By Grouping

I can divide larger numbers mentally by subtracting easy multiples.

1. $57 \div 3 =$ _____

First work out 10×3 .

$10 \times 3 =$ _____

Subtract the multiple of ten from 57. What is left? _____

How many 3s go into this number? _____

Add up the number of groups of 3 to get your answer: _____

2. Now try these:

a. $84 \div 3 =$ _____

b. $84 \div 4 =$ _____

c. $165 \div 5 =$ _____

d. $114 \div 6 =$ _____

e. $98 \div 7 =$ _____

3. Make up your own word problem in the box below to go with one of the number sentences in question 2.



Division By Grouping

I can divide larger numbers mentally by subtracting easy multiples.

1. $59 \div 3 =$ _____ remainder _____

First work out 10×3 . $10 \times 3 =$ _____

Subtract the multiple of ten from 59. What is left? _____

How many 3s go into this number? _____ Are there any left over? _____

Add up the number of groups of 3 to get your answer: _____

Is there a remainder? _____

2. Now try these:

a. $88 \div 3 =$ _____

b. $89 \div 4 =$ _____

c. $168 \div 5 =$ _____

d. $117 \div 6 =$ _____

e. $99 \div 7 =$ _____

3. Make up your own word problem in the box below to go with one of the number sentences in question 2.

Anagrams



Can you unscramble these mathematical words?

ELUTIMLP

EIERNMDAR

TRTOPINIA

Aim



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