

SAMPLE

There must be
another way!

The common
mistake is...

I've spotted
a pattern...

Have we
tried...

I SEE REASONING - UKS2

TASKS FOR ENRICHING MATHEMATICAL TALK

MULTIPLICATION

So that's why...

It's simpler
if we...

I've never noticed
that before!

The picture
shows...

I've spotted a
pattern...

It's possible if...

That's different
about...



by GARETH METCALFE

Instant digital download
in PDF format

I SEE REASONING – UKS2

Sample materials - multiplication

This is a free copy of the multiplication section from '***I See Reasoning – UKS2***'.

There are 19 sections in the full resource. It can be ordered from the following page:

https://www.etsy.com/uk/listing/529914946/i-see-reasoning-uks2-ebook?ref=shop_home_feat_1

For more information about ***I See Maths***, including training and more resources, visit www.iseemaths.com

Explain the mistakes

Mistake 1

$$3.4 \times 100 = 3.400$$

Mistake 2

$$0.7 \times 100 = 700$$

Mistake 3

$$35 \div 10 = 350$$

Mistake 4

$$6.4 \times 10 = 60.4$$

Explain the mistakes

$$63 \times 27$$

Mistake 1

$$60 \times 20 = 1200$$

$$3 \times 7 = 21$$

$$1200 + 21 = 1221$$

Mistake 2

	20	7
60	120	420
3	60	21

$$120 + 420 + 60 + 21 = 621$$

Explain the mistakes

$$163 \times 27$$

Mistake 1

$$\begin{array}{r} 163 \\ \times 27 \\ \hline 1141 \\ 326 \\ \hline 1467 \end{array}$$

Mistake 2

$$\begin{array}{r} 163 \\ \times 27 \\ \hline 721 \\ 2260 \\ \hline 2981 \end{array}$$

I know... so...

$$24 \times 18 = 432$$

$$25 \times 18 = \underline{\hspace{2cm}}$$

$$25 \times 17 = \underline{\hspace{2cm}}$$

I know... so...

$$25 \times 48 = \underline{\hspace{2cm}}$$

$$100 \times 48 = 4800$$

$$\underline{\hspace{2cm}} \times 48 = 4848$$

I know... so...

$$60 \times 85 = \underline{\hspace{2cm}}$$

$$240 \times 85 = 20400$$

$$242 \times 85 = \underline{\hspace{2cm}}$$

Broken calculator

'The 8 and 2 keys on my calculator are broken!'

How can I use it to work out:

$$50 \times 28$$

$$25 \times 18$$

Rank by difficulty

$$49 \times 8$$

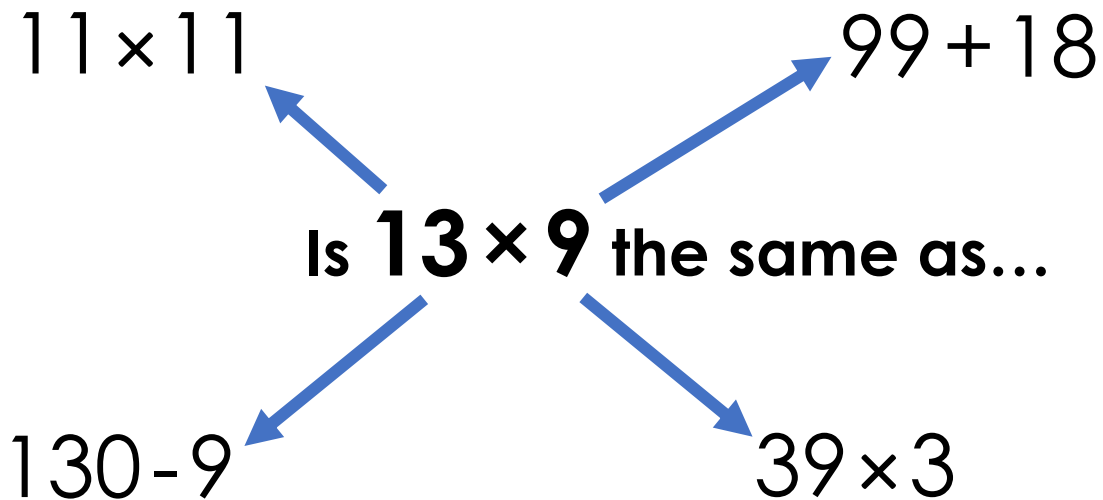
$$17 \times 8$$

$$25 \times 8$$

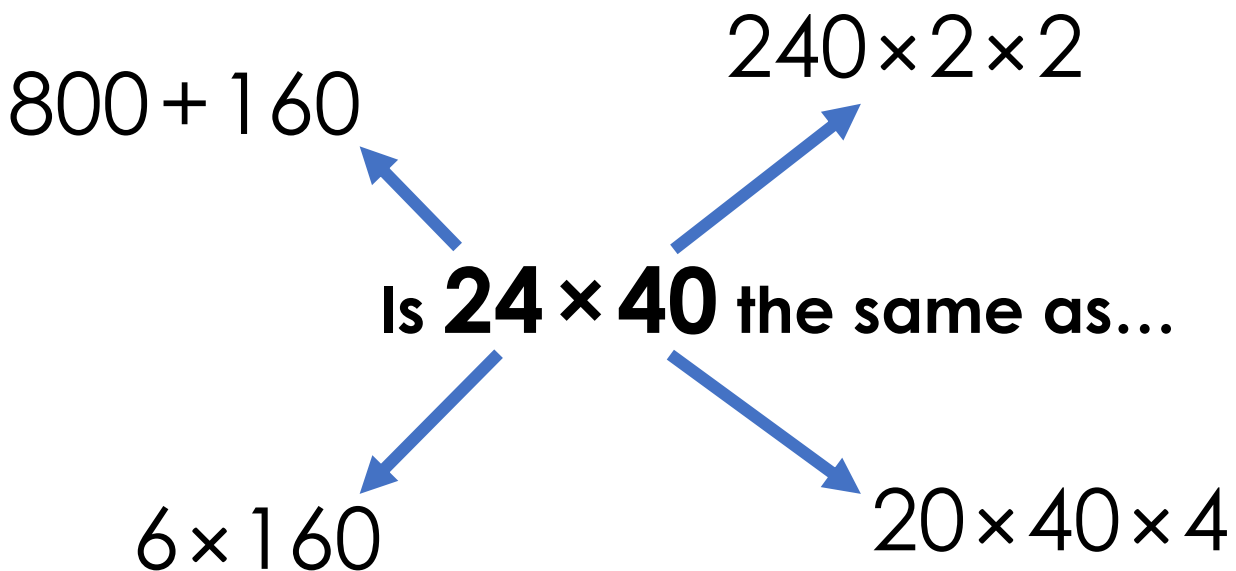
Matching number sentences

+ or - number sentence	× number sentence
$12 + 12 + 18$	6×7
$35 + 14 + 7$	
$160 - 16$	
	12×8

Is it the same?

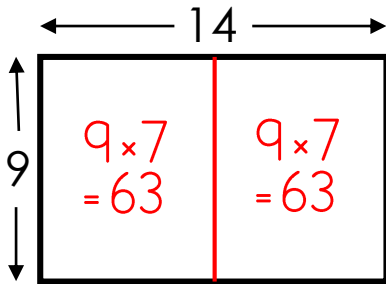


Is it the same?

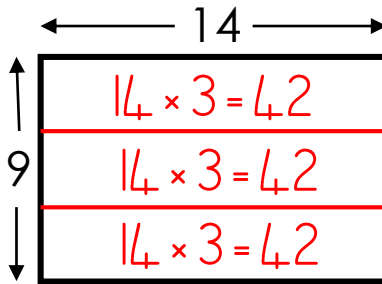


3 ways

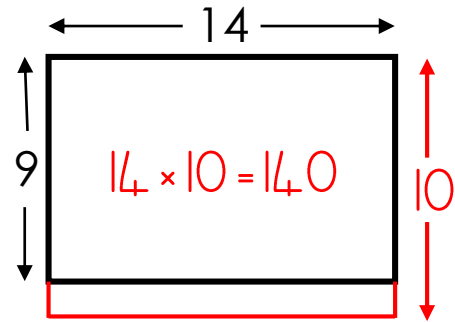
$$14 \times 9$$



$$63 + 63 = 126$$

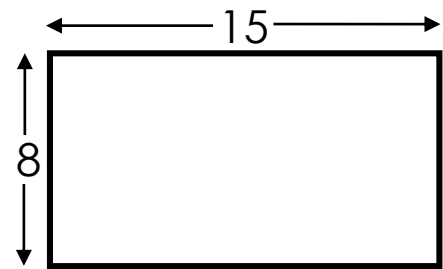
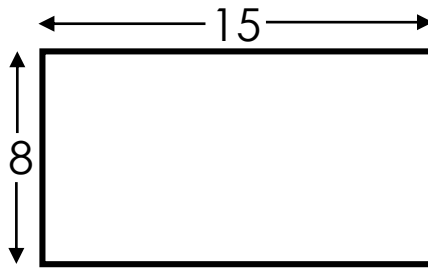
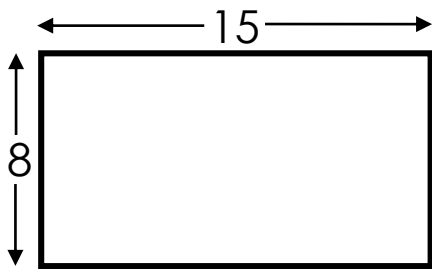


$$42 \times 3 = 126$$



$$140 - 14 = 126$$

Find 3 ways to calculate 15×8 :



True or false?

$$17 \times 13 = 15 \times 15$$

What do you notice?

Try other examples. Do you see a pattern?

How many ways?

Complete using digits 0-9. The digit in the box with a border must be odd.

$$\boxed{}\boxed{} \times \boxed{} = \boxed{}\boxed{}$$

Level 1: I can find a way

Level 2: I can find different ways

Level 3: I know how many ways there are

How many ways?

Complete using digits 0-9. Position the digit 1 as shown.

$$\boxed{}\boxed{} \times \boxed{} = \boxed{}\boxed{}\boxed{1}$$

Level 1: I can find a way

Level 2: I can find different ways

Level 3: I know how many ways there are

Missing digits

$$\begin{array}{r} \square 8 \square \\ \times 9 \\ \hline 7047 \end{array}$$

Missing digits

$$\begin{array}{r} 5 \square 3 \\ \times \square \\ \hline 3438 \end{array}$$

Missing digits

$$\begin{array}{r}
 25\square \\
 \times \square 7 \\
 \hline
 1771 \\
 7590 \\
 \hline
 9361
 \end{array}$$

Missing digits

$$\begin{array}{r}
 \square 15 \\
 \times 6\square \\
 \hline
 3260 \\
 48900 \\
 \hline
 52160
 \end{array}$$

Explain

Which can be completed in more ways?

$$\square \times \square \times \square = 28$$

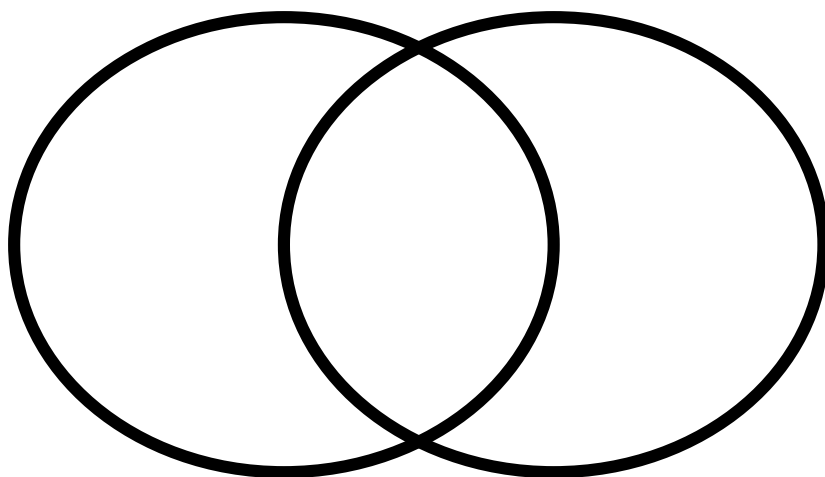
$$\square \times \square \times \square = 34$$

Explore

Put a number in each section of the Venn diagram.

even numbers

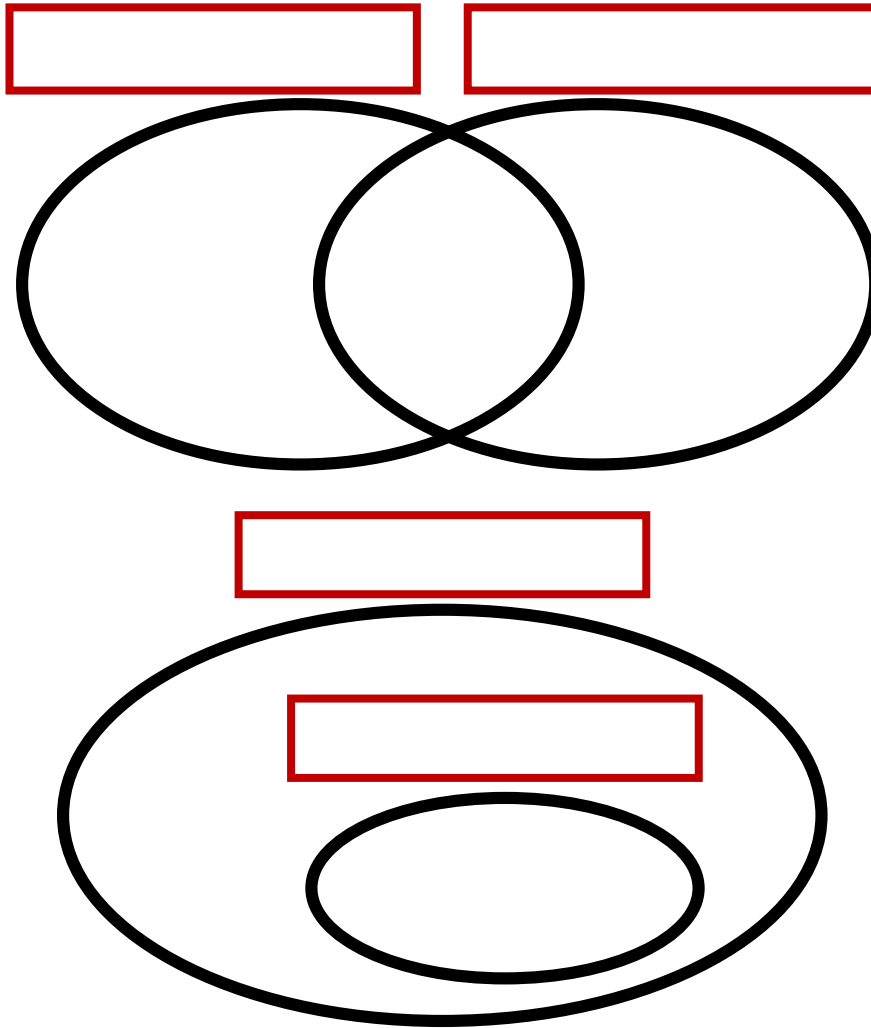
prime numbers



How many numbers can go in the middle section?

Explore

Position the headings. Put a number in each section.



Headings:

Multiples of 7

Multiples of 3

Multiples of 12

Even numbers

True or false?

'Odd square numbers greater than 1 have three factors.'

I SEE REASONING – UKS2

Answers

Multiplication

Matching number sentences: Example $35+14+7=7\times 8$; $160-16=16\times 9$;
 $80+16=12\times 8$

True or false? example 1: 15×15 one more than 16×14 , four more than 17×13 , nine more than 18×12 (note continuing pattern of square numbers, can be investigated further)

How many ways? example 1: 3 ways ($27\times 3=81$; $19\times 3=57$; $29\times 3=87$)

How many ways? example 2: 3 ways ($67\times 3=201$; $87\times 3=261$; $93\times 7=651$)

Missing digits: $783\times 9=7047$; $573\times 6=3438$; $253\times 37=9361$; $815\times 64=52160$

Explain: 28 as it has more factors (1, 2, 4, 7, 14, 28) than 34 (1, 2, 17, 34)

Explore: 2 is the only number in the middle (the only even prime)

True or false? False: when the square root of an odd square number is prime it has 3 factors (e.g. 49). Otherwise there are more than 3 factors (e.g. 81 has factors 1, 3, 9, 27, 81).