Problems of the Day 2020

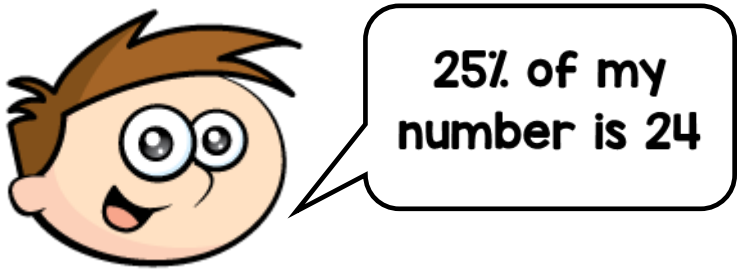
Day 1

1 Fill in the missing numbers.

100 less than 20,000 is [19,900]

[600] more than 20,000 is 20,600

2

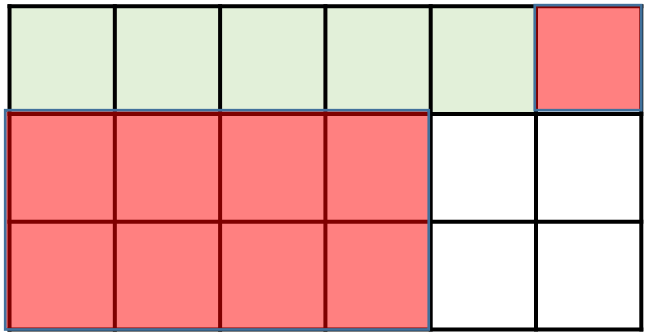


What number is Teddy thinking of?

$24 \times 4 = 96$

Teddy is thinking of 96

3 Lucy shades in part of a rectangle.



She shades some more squares.

$\frac{7}{9}$ of the rectangle is now shaded.

How many more squares did Lucy shade?

Lucy shades 9 more squares.

White Rose Maths

Problems of the Day 2020

Day 2

1 Ron and Eva each make a 3-digit number from these digit cards.

3	6	8

- Ron makes the largest even number possible. 836
- Eva makes the smallest odd number possible. 683

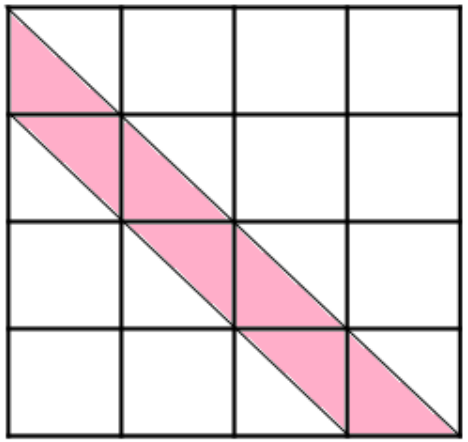
What is the difference between their numbers?

$836 - 683 = 153$

2 Circle all the fractions that are greater than 1 but less than 2

$\frac{12}{5}$ $\frac{12}{6}$ $\frac{12}{7}$ $\frac{12}{8}$

3 What fraction of this shape is shaded?



$\frac{7}{32}$

White Rose Maths

Problems of the Day 2020

Day 3

1 Which of these numbers round to 2,000 to the nearest 100?

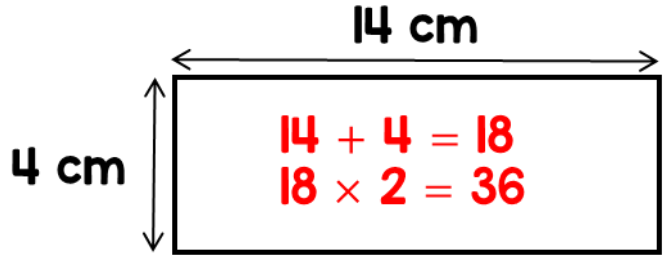
1,950 2,312 2,099 2,045

2 What are the missing numbers?

$6.4 = 1 + \boxed{5.4}$

$3\frac{2}{5} = 1 + \frac{\boxed{12}}{5}$

3 Annie has a 1 metre piece of wire. She cuts the wire into two pieces. She uses the smaller piece to make this rectangle.



She uses the other piece of wire to make a square.

What is the length of one side of the square?

100 − 36 = 64
64 ÷ 4 = 16

One side of the square is 64 cm.

White Rose Maths

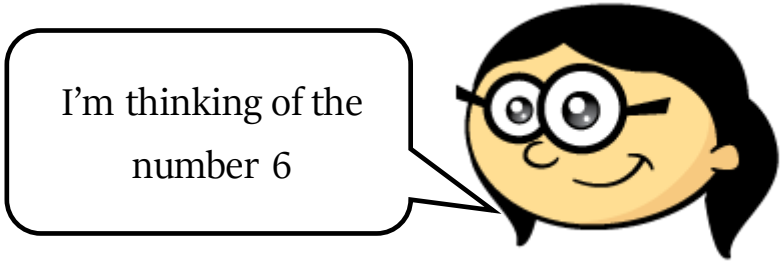
Problems of the Day 2020

Day 4

1 What are the missing digits?

3	6	+	7	5	=	1	1	1

2 Annie and Ron each think of a number.

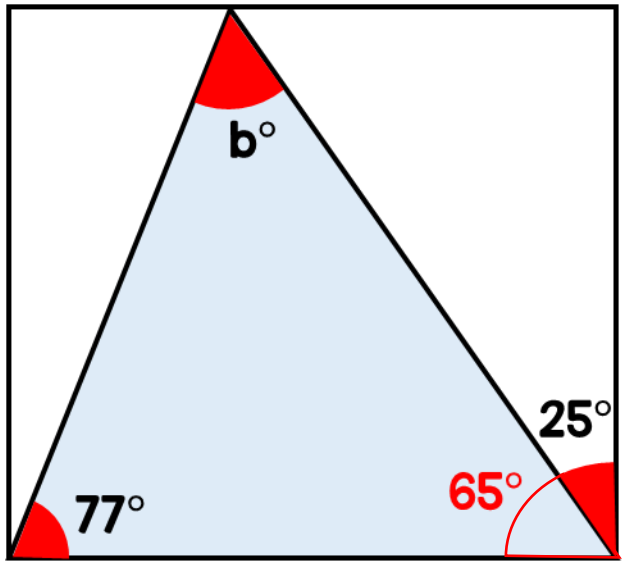


The product of their numbers is 762

Work out Ron's number.

762 ÷ 6 = 127

3 Find the size of angle b.



90 − 25 = 65

65 + 77 = 142
180 − 142 = 38

b = 38°

White Rose Maths

Problems of the Day 2020

Day 5

1 Marbles are put into bags of 10

- 67 bags of marbles are packed.
- 3 more marbles are added to each bag.

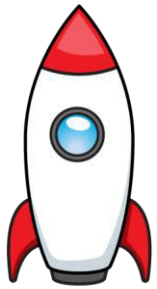
How many marbles are there in total now? $67 \times 13 = 871$

2 Work out the missing digits.

$$\boxed{5} \times \boxed{7} \times \boxed{3} = 105$$

$105 \div 5 = 21$

3 A toy train costs three times as much as a rocket.



The total cost of the train and rocket is £52

How much does the train cost?

$52 \div 4 = 13$
$13 \times 3 = 39$

The train costs £39

White Rose Maths

Problems of the Day 2020

Day 6

1 The table shows the ages of people in a theme park.

Age	Number of people
Under 18	126
18 - 60	195
Over 60	38

These are the entry costs.

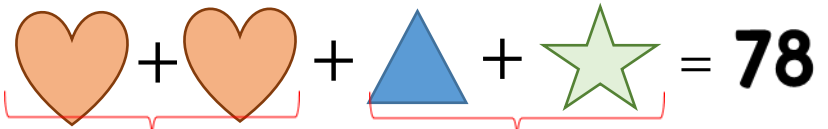
How much money did the theme park make from entry costs? £2,846

126 × 5 = 630 38 × 7 = 266

195 × 10 = 1,950 630 + 1,950 + 266 = 2,846

Das

Given that 100 ÷ 2 = 50



28 50

Work out the value of the 

78 − 50 = 28 28 ÷ 2 = 14

3 What are the missing numbers?

4.2 × 10 = 42

420 ÷ 10 = 42

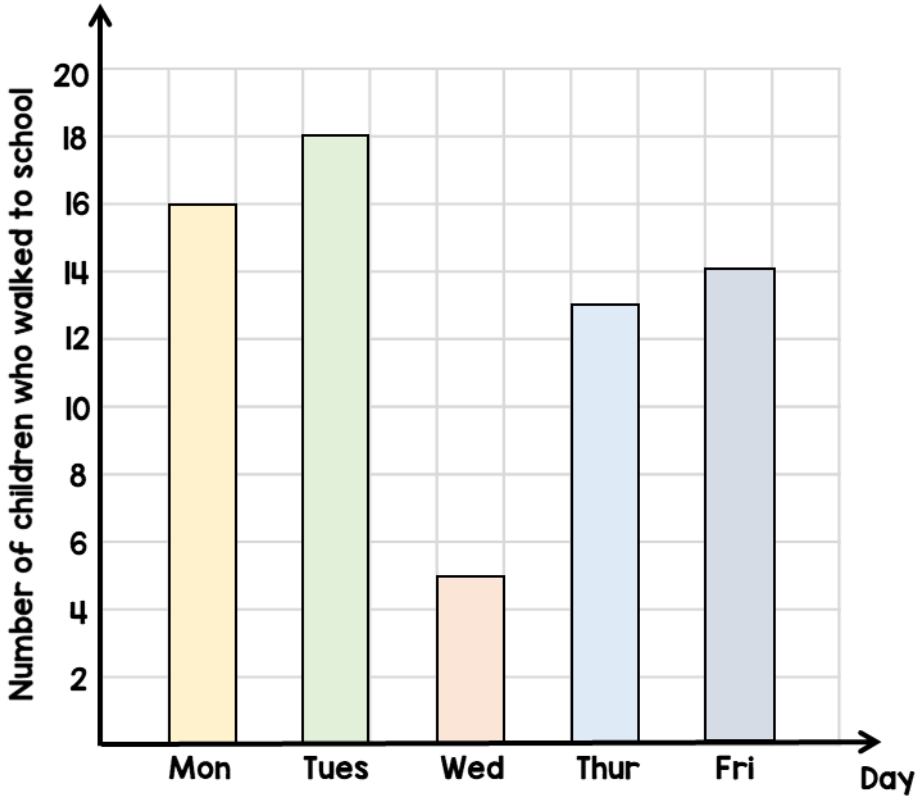
White Rose Maths

Problems of the Day 2020

Day 7

1 There are 25 children in a class.

The bar chart shows the number of children in the class who walk to school each day.



(a) What percentage of the class walked to school on Thursday?

$13 \times 4 = 52$ 52%

(b) One of the days it rained.

Which day do you think it was?

Explain to your friend.

Wednesday, because the least number of children walked.

2 Order the following numbers.

Start with the smallest.

3.1 $\frac{18}{5}$ $3\frac{1}{4}$

$\frac{18}{5} = 3\frac{3}{5} = 3.6$ $3\frac{1}{4} = 3.25$

3.1 , $3\frac{1}{4}$, $\frac{18}{5}$

White Rose Maths

Problems of the Day 2020

Day 8

1 Workers in a factory make toys.

- On Monday they make 2,350 toys.
- On Tuesday they make 235 more toys than they did on Monday.

By Wednesday they have to make 7,500 toys in total.

How many toys do they need to make on Wednesday to make 7,500 in total?

2,350 + 235 = 2,585
2,350 + 2,585 = 4,935
7,500 − 4,935 =2,565

They need to make 2,565 toys on Wednesday.

2

Carrots
£1.80 per kg

How much does 250 g of carrots cost? 1.80 ÷ 4 = 0.45

250 g of carrots cost 45p

3

Parsnips
£2.60 per kg

How much does 300 g of parsnips cost? 2.60 ÷ 10 = 0.26
0.26 × 3 = 0.78

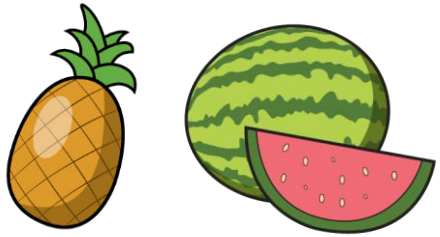
300 g of parsnips cost 78p

White Rose Maths

Problems of the Day 2020

Day 9

1 The cost of a pineapple is half the cost of a melon.



£3.50 each

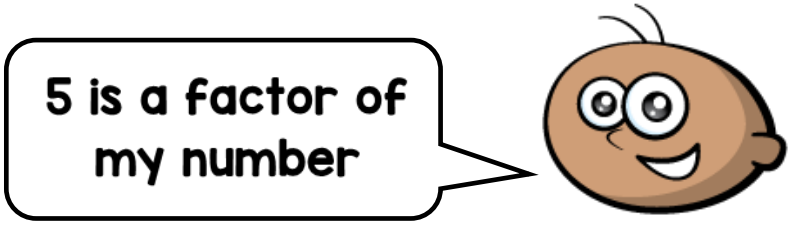
3.50 ÷ 2 = 1.75

3.50 + 1.75 = 5.25

How much does the pineapple and melon cost altogether?

They cost £5.25 altogether.

2 Tommy thinks of a number.

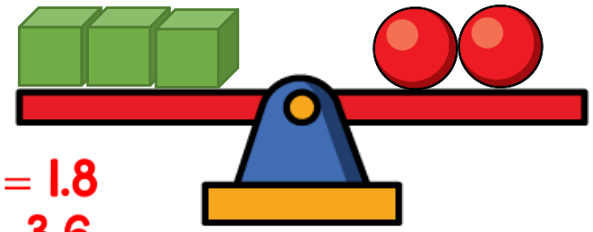


Does Tommy's number have to be odd? Explain your answer.

5 is a factor of 20

20 is even.

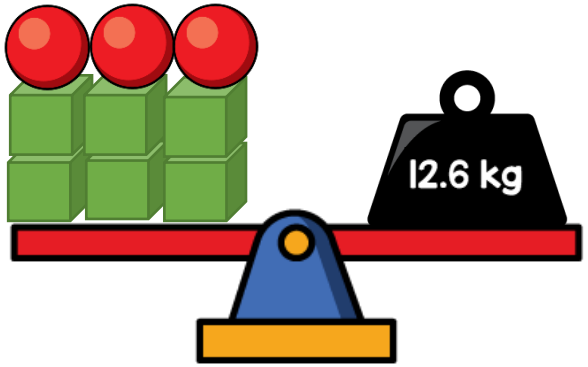
3 Gina balances some scales.



12.6 ÷ 7 = 1.8

1.8 × 2 = 3.6

3.6 ÷ 3 = 1.2



What is the mass of a cube?

The mass of a cube is 1.2 kg.

White Rose Maths

Problems of the Day 2020

Day 10

1 Here are some digit cards.

1	4	5	9

Find the 4-digit number that is closest to 5,000

You may use each card only once.

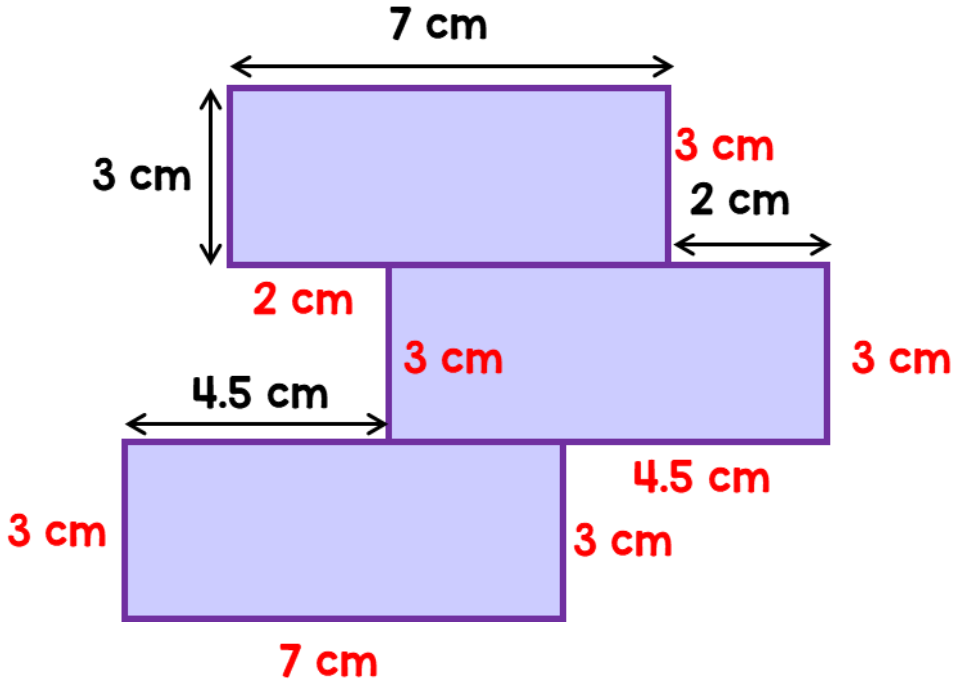
4,951

2 Complete the number sentences.

$65 + \boxed{14} = 79$

$83 + 28 = 82 + \boxed{29}$

3 Three identical rectangles are arranged to make a shape.



What is the perimeter of the shape? 45 cm

White Rose Maths

Das Bildelement mit der Beziehungs-ID rId3 wurde in der Datei nicht gefunden.

Day 11

1 Use $<$, $>$ or $=$ to make these number sentences correct.

$9 \times 7 \; > \; 8 \times 7$

$48 \div 2 \; > \; 48 \div 4$

$300 \times 2 \; = \; 20 \times 30$

2 There are 1,500 children in a school.

565 of the children are girls.

How many more boys than girls are in the school?

$1{,}500 - 565 = 935$

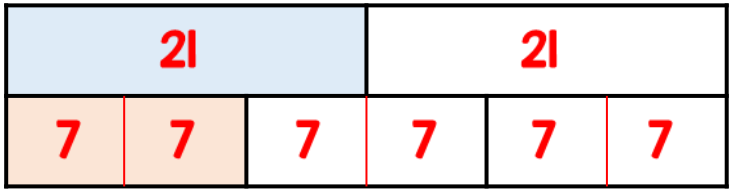
$935 - 565 = 370$

There are 370 more boys than girls.

3 Mr Patel writes a number on the board.

- Leon finds $\frac{1}{2}$ of the number.
- Sophie finds $\frac{1}{3}$ of the number.
- Leon's number is 7 more than Sophie's.

What is the number Mr Patel started with? This bar model may help you.



Mr Patel started with 42

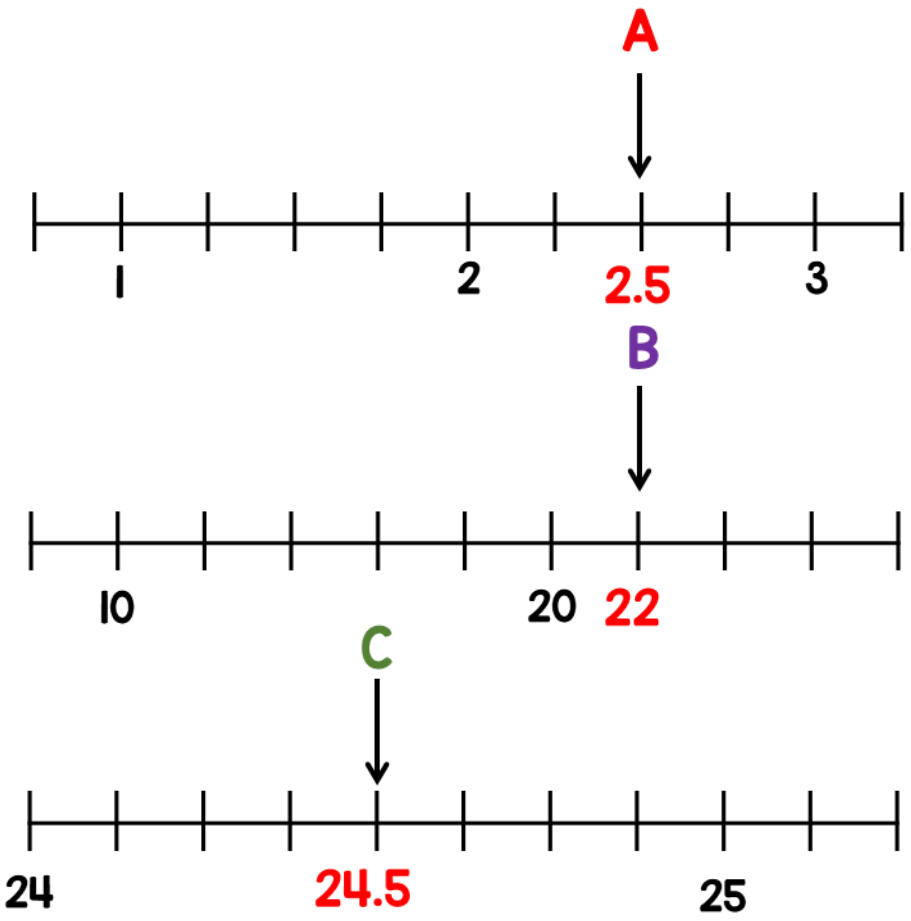
White Rose Maths

Problems of the Day 2020

Day 12

1 Given than A + B = C

Draw an arrow pointing to C



2 George has a box of counters.

- For every 2 red counters there are 5 blue ones.
- George removes 36 blue counters from the box.
- There are now the same amount of red and blue counters.

How many red counters were in the box at the start? 24 red counters.

3 Elijah says he divided 32 by a number and got 64

Is this possible?

Yes, he could divide by 0.5

White Rose Maths

Problems of the Day 2020

Day 13

1 Sam has £29

He gets £28 more for his birthday.

He buys this cap and jumper with his money.

How much money does he have left?

Sam has £16.51 left.

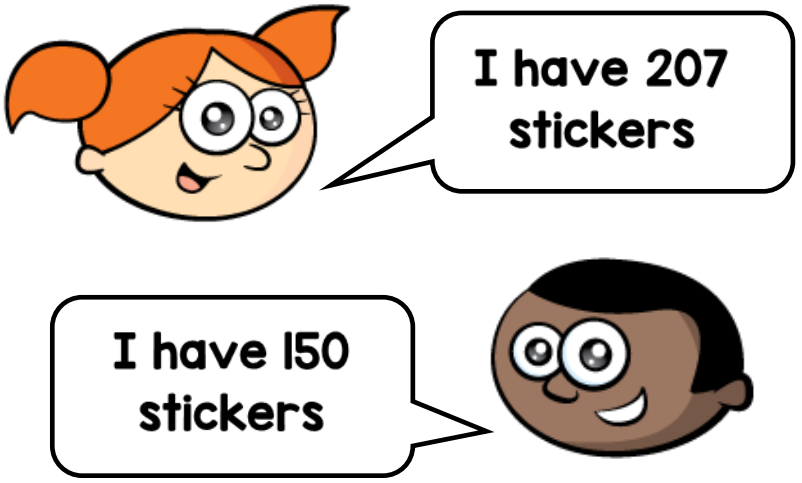
2 One fifth of a number is 12

What is a half of the number?

$12 \times 5 = 60$
$60 \div 2 = 30$

Half of the number is 30

3



Mo gives Alex some stickers.

Alex now has twice as many as Mo.

How many stickers did Mo give Alex?

$207 + 150 = 357$
$357 \div 3 = 119$

Mo gives Alex 31 stickers.

White Rose Maths

Problems of the Day 2020

Day 14

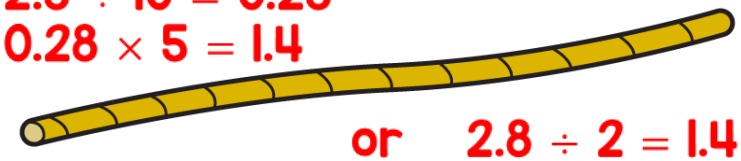
1 Circle all the numbers equivalent to 0.25

0.4 $\frac{50}{100}$ $\frac{25}{100}$ $\frac{1}{4}$

2 A rope measures 2.8 metres.

$2.8 \div 10 = 0.28$

$0.28 \times 5 = 1.4$



or $2.8 \div 2 = 1.4$

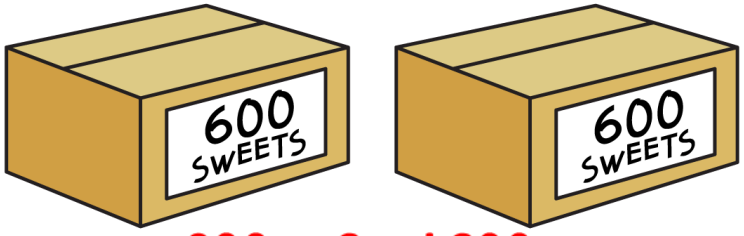
The rope is cut into 10 equal sized pieces.

What is the total length of 5 of these pieces?

The total length is 1.4 metres.

3 Sweets come in boxes of 600

Danny has two boxes of sweets.



$600 \times 2 = 1{,}200$

He packs the sweets into smaller bags.

There are 21 in each bag.

How many bags can Danny fill using all the sweets?

$1{,}200 \div 21 = 57$ r 3

Danny can fill 57 bags.

White Rose Maths

Problems of the Day 2020

Day 15

1 On a bookcase

- $\frac{5}{8}$ of the books are fiction books.
- The rest are non-fiction.
- There are 72 non-fiction books.

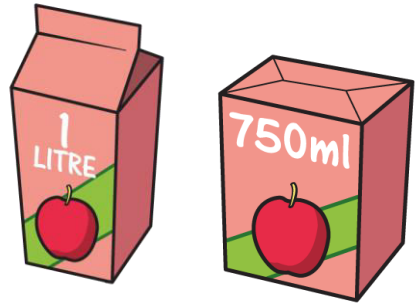
How many books are fiction?

Non-fiction $= \frac{3}{8}$

$72 \div 3 = 24$
$24 \times 5 = 120$

120 books are fiction.

2 Amir has two cartons of apple juice.



He shares all the juice equally between these glasses.

$1{,}750 \div 5 = 350$

How much apple juice does he pour into each glass?

He pours 350 ml into each glass.

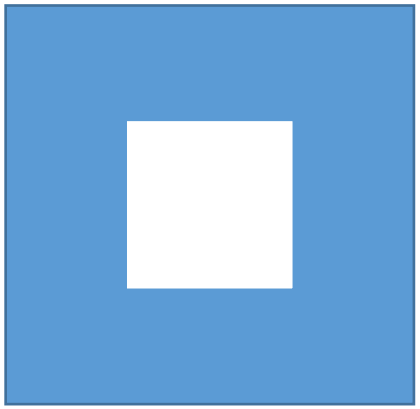
White Rose Maths

Problems of the Day 2020

Day 16

Yasmin has a large blue square piece of paper.

She cuts out a 4 cm x 4 cm square from the centre.

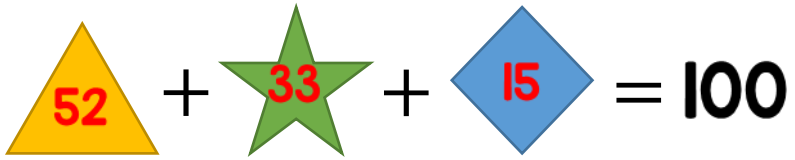


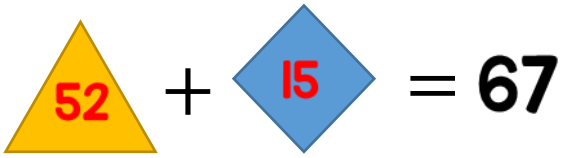
$4 \times 4 = 16$
$16 + 65 = 81$

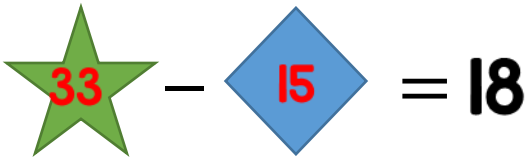
$81 = 9 \times 9$

The area of the blue region is 65 cm^2.
What is the length of the large blue square? The length is 9 cm.

2 Work out the value of each symbol.







$100 - 67 = 33$

$33 - 18 = 15$

$67 - 15 = 52$

White Rose Maths

Problems of the Day 2020

Day 17

1 Jack and Dora each have some money.

I spent $\frac{1}{3}$ of my money.

I spent $\frac{1}{4}$ of my money.

They have the same amount left.

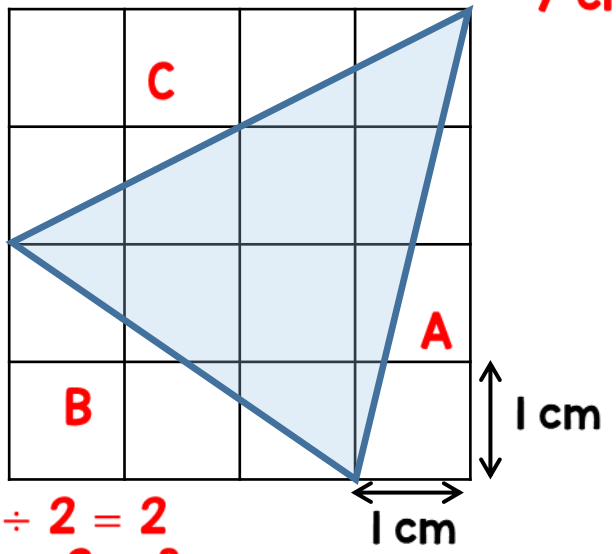
Dora spent £72

How much money did Jack spend?

Jack spent £48

2 What is the area of the triangle?

7 cm²



$A = 1 \times 4 \div 2 = 2$
$B = 2 \times 3 \div 2 = 3$
$C = 2 \times 4 \div 2 = 4$

$2 + 3 + 4 = 9$
$16 - 9 = 7$

3 Write down all the common multiplies of 4 and 6 that are less than 50
Show or explain your method.

12, 24, 36, 48

White Rose Maths

Problems of the Day 2020

Day 18

1 A can holds 330 ml of pop.

Pop is sold in packs of 6

Karl buys 12 packs of pop.

How many litres of pop does he have?

$6 \times 330 = 1{,}980$
$1{,}980 \times 12 = 23{,}760$
$23{,}760 \div 1{,}000 = 23.76$

Karl has 23.76 litres of pop.

2 £290 is shared between 10 boys and 12 girls.

Each girl receives £15

$12 \times 15 = 180$
$290 - 180 = 110$

How much money does each boy receive, if they each get the same amount of money?

$110 \div 10 = 11$ Each boy gets £11

3 Here is a sequence

2, 5, 9, 12, 2, 5, 9, 12, 2, 5, 9, 12, ...

What is the sum of the first 200 numbers in this sequence?

Explain your method.

$2 + 5 + 9 + 12 = 28$
$28 \times 50 = 1{,}400$

White Rose Maths

Problems of the Day 2020

Day 19

1 The diameter of a 10p coin is 24.5 mm.
The diameter of a 5p coin is 18 mm.
Some coins are laid out end to end.

What is the distance marked b in the diagram?

$24.5 \times 4 = 98$
$18 \times 5 = 90$
$98 - 90 = 8$

$b = 8$ mm

2 Mrs Green bakes muffins.
She sells them in her shop.

$200 \div 10 = 20$
$20 \times 7 = 140$
$200 - 140 = 60$

- On Monday she bakes 200 and sells 70% of the them.
- On Tuesday she bakes twice as many muffins but has the same amount left. $400 - 60 = 340$

$\frac{340}{400} = \frac{17}{20}$ $17 \times 5 = 85$

What percentage of the muffins did she sell on Tuesday?

She sold 85% of the muffins.

White Rose Maths

Problems of the Day 2020

Day 20

1 Complete these number sentences.

$25 + 25 + 25 + 25 = \boxed{4} \times 25$

$10 + 10 + 10 + 10 = \boxed{8} \times 5$

$25 + 25 + 25 + 25 = \boxed{20} \times 5$

$25 + 25 + 25 + 25 = \boxed{1} \times 100$

$25 + 25 - 25 - 25 = \boxed{0} \times 25$

2 Louise is thinking of a 4-digit number.

Here are some clues to the number.

The number lies between 4,000 and 5,000

All the digits are different

The digit in the tens place is twice the digit in the thousands place

The sum of the digits is 24

The number is odd

What could Louise's number be?

4,983 , 4,389
4,587 , 4,785

White Rose Maths