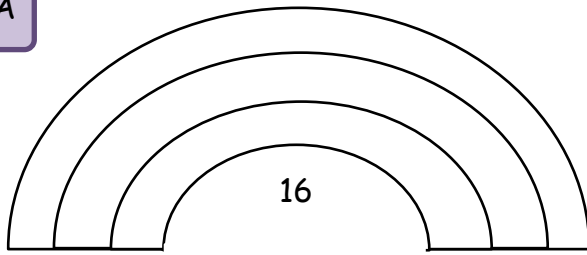


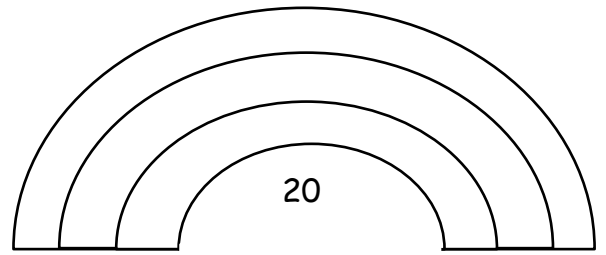
Choose from A, B or C. If you want to complete more than one, you can!

Find the factor pair rainbows for these numbers. You could colour in the rainbow to show the matching pairs.

A

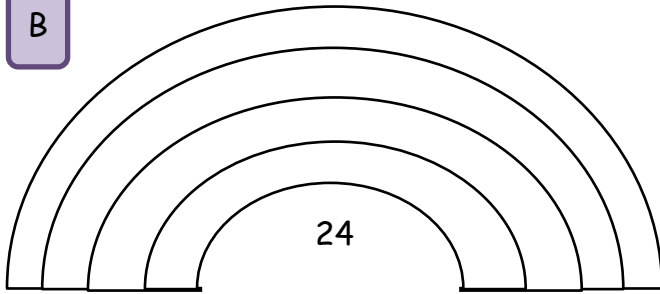


1, 2, 4 × 4, 8, 16

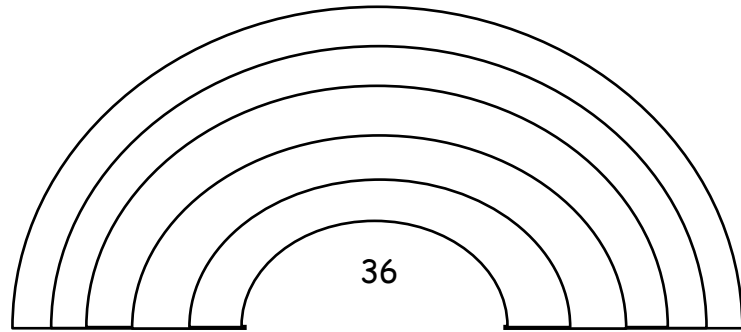


1, 2, 4 × 20, 10, 5

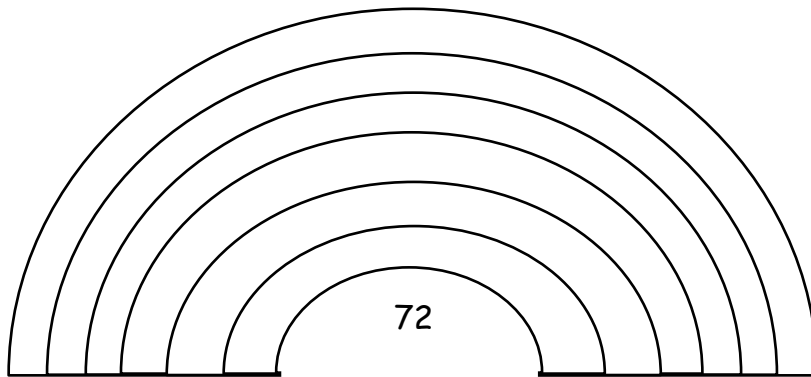
B



1, 2, 3, 4 × 6, 8, 12, 24



1, 2, 3, 4, 6 × 6, 9, 12, 18, 36



1, 2, 3, 4, 6, 8 × 9, 12, 18, 24, 36, 72

C

Use your knowledge of factor pairs to investigate this problem.

Some numbers are equal to the sum of all their factors (not including the number itself).

e.g. 6 has 4 factors: 1, 2, 3 and 6

If you add up all the factors except 6 itself,  $1+2+3$ , you get 6!

Therefore, 6 is **equal to the sum of its factors** (not including the number itself).

How many other numbers can you find that are **equal to the sum of their factors**?

Which numbers are less than the sum of their factors?

Which numbers are greater than the sum of their factors?

Possible answers:  $28 = 1 + 2 + 4 + 7 + 14$

28 is equal to the sum of its factors.  $12 < 1 + 2 + 3 + 4 + 6$

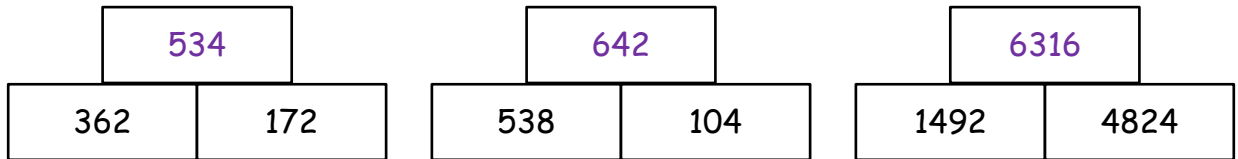
12 is less than the sum of its factors.  $8 > 1 + 2 + 4$

8 is greater than the sum of its factors.

Website to support your learning:

<https://www.bbc.co.uk/bitesize/articles/z6vr47h>

A Use column addition to complete these addition pyramids.




B Use column addition to solve these worded problems.

- If Fred has 137 toy cars and George has 135 toy cars, how many do they have altogether?  
272
- One farmer has 336 lambs in the first year and 287 lambs in the second years. How many lambs did the farmer have over the two years?  
623
- A grocer sold 127 bags of sweets on Monday, 184 bags on Tuesday and 42 bags on Wednesday. How many bags of sweets did the grocer sell in total?  
353
- A man bought a pack of 2840 balloons. Then, he bought a pack of 1230 streamers as well as 270 banners for a party. How many decorations did he buy in all?  
4340

C

Use your knowledge of column addition to investigate these problems.

1) How many different ways can you complete this missing number problem?

Possible answers:

$$\begin{array}{r} 8 \quad 8 \\ 2 \quad 8 \quad + \\ \hline 1 \quad 1 \quad 6 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 5 \quad 8 \\ 2 \quad 8 \quad + \\ \hline \quad 8 \quad 6 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 9 \quad 8 \\ 2 \quad 8 \quad + \\ \hline 1 \quad 2 \quad 6 \\ \hline 1 \end{array}$$

There are 10 possible answers.

2) Rosie adds two numbers together that add up to 4444.



Both numbers have 4 digits.

All the digits in both numbers are even.

What could the numbers be?

Prove it.

How many ways can you find?

Possible answers:

2222 + 2222  
 2244 + 2200  
 2224 + 2220  
 2442 + 2002  
 2242 + 2202  
 2424 + 2020  
 2422 + 2022  
 2444 + 2000

There are more possible pairs. This includes 0 as an even number. Discussion could be had around whether 0 is odd or even and why.

Websites to extend your learning:

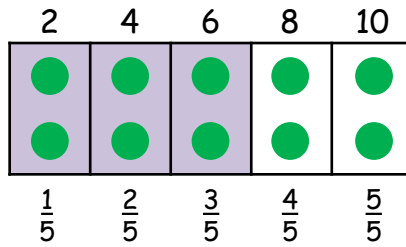
<https://mathsframe.co.uk/en/resources/category/9/addition-and-subtraction>

<https://www.topmarks.co.uk/Flash.aspx?a=activity11>

Website to support your learning:

<https://www.youtube.com/watch?v=D4DL4UleRuI>

$$\frac{3}{5} \text{ of } 10 = \underline{\hspace{2cm}}$$



I know....

$$\frac{1}{5} \text{ of } 10 = 2 \quad (10 \div 5 = 2)$$

So...

$$\frac{3}{5} \text{ of } 10 = 6 \quad (3 \times 2 = 6)$$

A

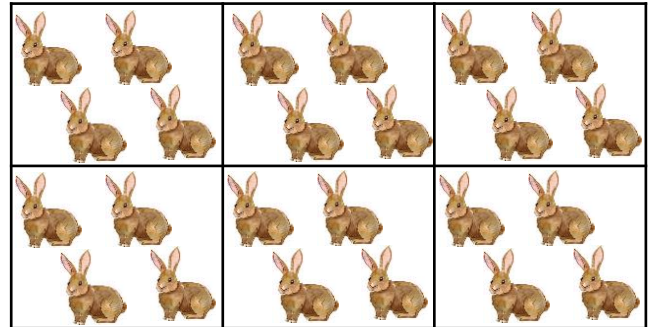
Use pictorial representations to help solve these calculations.

At the pet shop, there are an equal number of rabbits in hutches. Here are the current rabbits in hutches.

1a) How many rabbits are in each hutch? \_\_\_\_\_

$$\text{b) } \frac{1}{6} = 4 \quad \frac{2}{6} = 8 \quad \frac{3}{6} = 12$$

$$\frac{4}{6} = 16 \quad \frac{5}{6} = 20 \quad \frac{6}{6} = 24$$

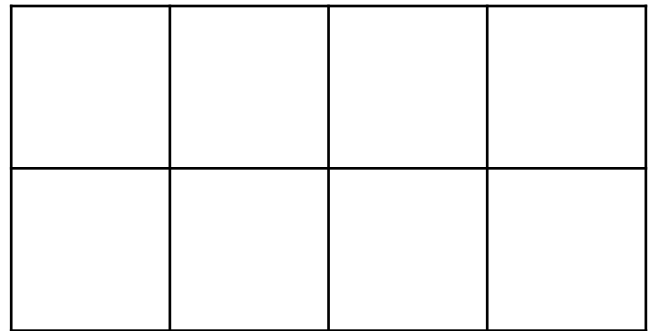


2) The pet shop also has 40 mice in 8 hutches, each holding the same number.

$$\frac{1}{8} = 5 \quad \frac{2}{8} = 10 \quad \frac{3}{8} = 15$$

$$\frac{4}{8} = 20 \quad \frac{5}{8} = 25 \quad \frac{6}{8} = 30$$

$$\frac{7}{8} = 35 \quad \frac{8}{8} = 40$$



2) There are some guinea pigs at the pet shop. They put one sixth of them in one hutch. There are 3 in each hutch. How many guinea pigs does the pet shop have in total? Use the space below to show how you worked out your answer.

$$\frac{1}{6} = 3$$

$$\frac{2}{6} = 6$$

$$\frac{3}{6} = 9$$

$$\frac{4}{6} = 12$$

$$\frac{5}{6} = 15$$

$$\frac{6}{6} = 18$$

18 guinea pigs



**B** Solve these worded problems, involving fractions of quantities.

1) Lavender gave  $\frac{2}{5}$  of her 20 sweets to Parvati. How many sweets did Parvati have?

8

2) Ernie was at the shop. He bought  $\frac{6}{9}$  of the apples that were in the basket. There were 54 apples in the basket in total. How many apples did Ernie buy?

36

3) There were 120 people at the school Christmas show. During the break of the performance,  $\frac{5}{6}$  of the audience went to buy ice cream. How many audience members bought ice cream?

100

**C** Explain your reasoning, using your knowledge of fractions.

1) There are 70 goldfish in a tank. Dean wants to move  $\frac{7}{10}$  of them to another tank. This is how he thinks he should calculate how many fish to move.

What mistake has Dean made? Explain how he should work it out.

First, I need to divide the number of goldfish by the numerator (7) and then multiply this by the denominator (10).

Dean has mixed up the denominator and numerator. He should divide by the denominator (10) and then multiply by the numerator (7).

2) There are 40 fish in another tank. 15 of them are angel fish.  $\frac{2}{5}$  are guppies. The rest are zebra fish. Dean says there are more guppies than any other fish. Is he right? Explain how you know.

Dean is correct.  
Angel fish = 15

Guppies =  $\frac{2}{5}$  of 40 =  $40 \div 5 = 8$ ,  $8 \times 2 = 16$

Zebra fish =  $40 - (15 + 16) = 9$



Websites to extend your learning:

<https://www.topmarks.co.uk/Flash.aspx?f=bingofractionsofamountsv3>

<https://mathsframe.co.uk/en/resources/resource/264/Crystal-crash-fractions-numbers>