How shall I add?

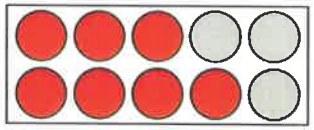
8 + 7, 9 + 9, 14 + 3
Number facts
Single digit numbers
Doubles
Teens and single digits

I just knew it!

13 + 17
Use known facts
30 + 70

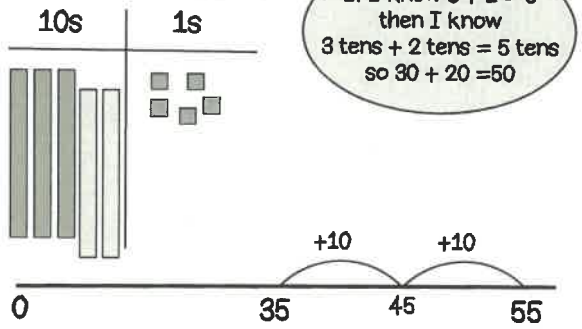
If I know 3 + 7 = 10
then I know
3 tens + 7 tens = 10 tens

If I know 3 + 7 = 10
then I know
13 + 17 is 2 tens more

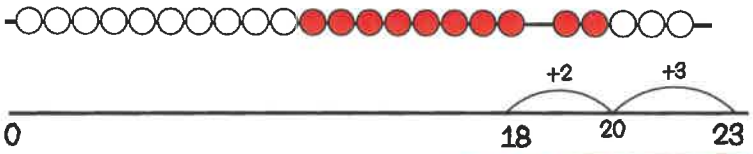


35 + 20
Add multiples of ten

If I know 3 + 2 = 5
then I know
3 tens + 2 tens = 5 tens
so 30 + 20 =50



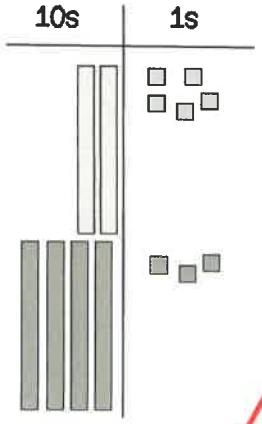
5 + 18
Greatest number first
then bridge

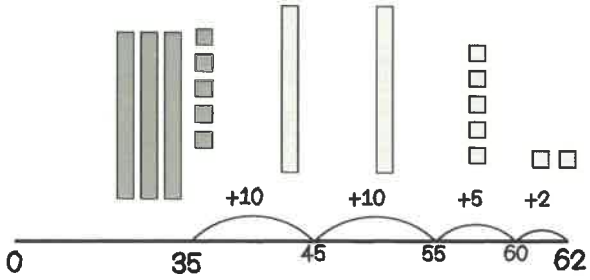


25 + 43
Partition and recombine

20 + 5 + 40 + 3

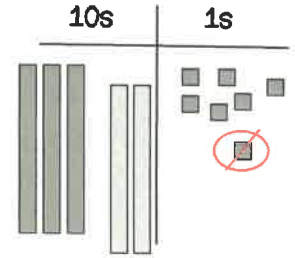
60 + 8 = 68



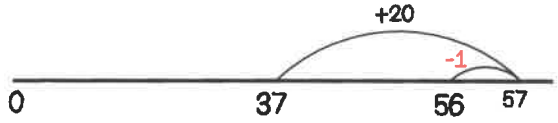


35 + 27
Count on in tens then ones

37 + 19
Round then adjust



Add 20 then subtract 1



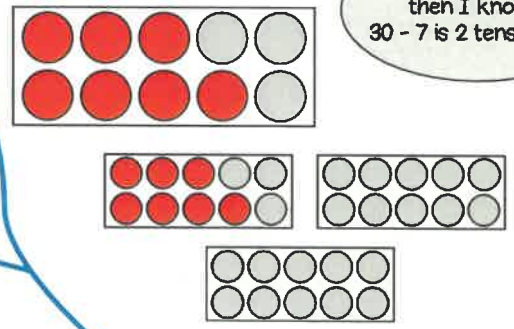
How shall I subtract?

9 - 4, 13 - 5, 18 - 9
Number facts
Single digit numbers
Halves
Teens and single digits

I just knew it!

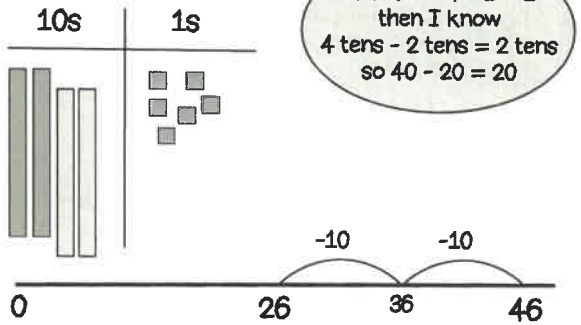
30 - 7
Use known facts
100 - 70

If I know 10 - 7 = 3
then I know
30 - 7 is 2 tens and 3

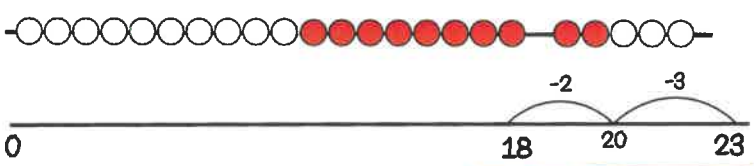


46 - 20
Count back: multiples of ten

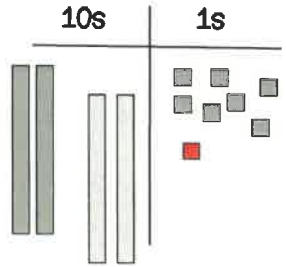
If I know 4 - 2 = 2
then I know
4 tens - 2 tens = 2 tens
so 40 - 20 = 20



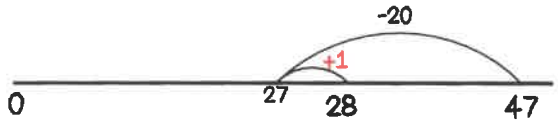
23 - 5
Count back: bridge through a multiple of ten



47 - 19
Round then adjust

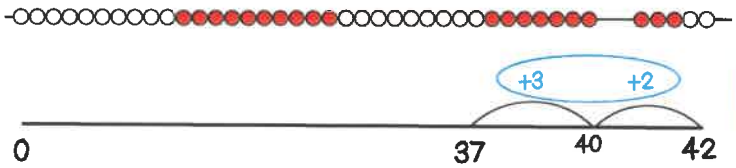


Take away 20 then add 1

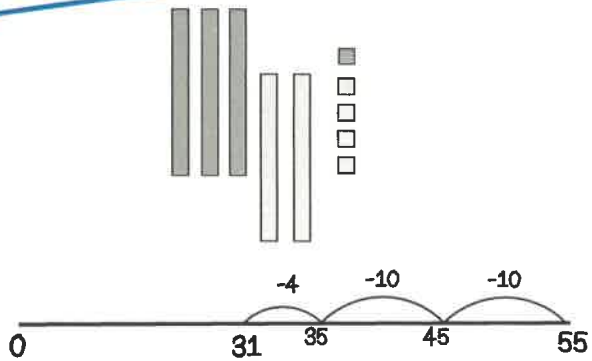


42 - 37
Find the difference between two numbers

42 is 5 more than 37,
37 is 5 less than 42 so
the difference between
37 and 42 is 5



55 - 24
Count back in tens then ones



How shall I multiply?

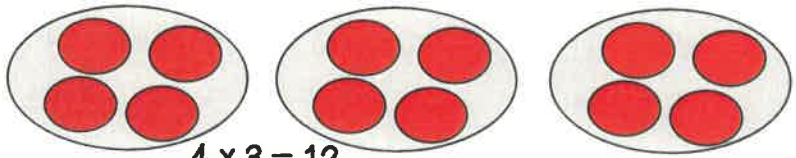
3 people each have 4 cats. How many cats are there in total?

Recall of 2x, 5x and 10x tables

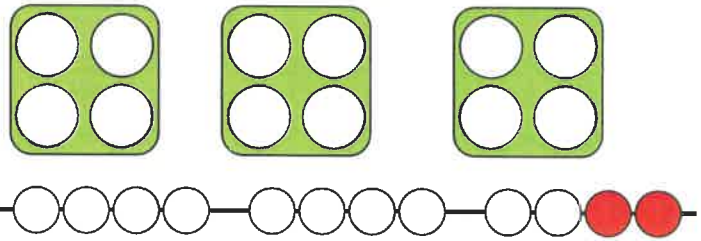
Equal groups

There are 3 groups with 4 cats in each group

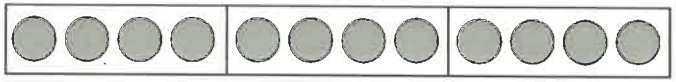
Four cats, multiplied by 3

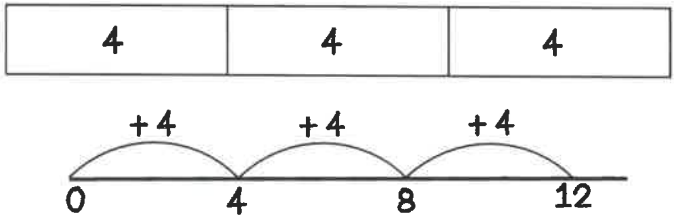


4 x 3 = 12



Repeated addition

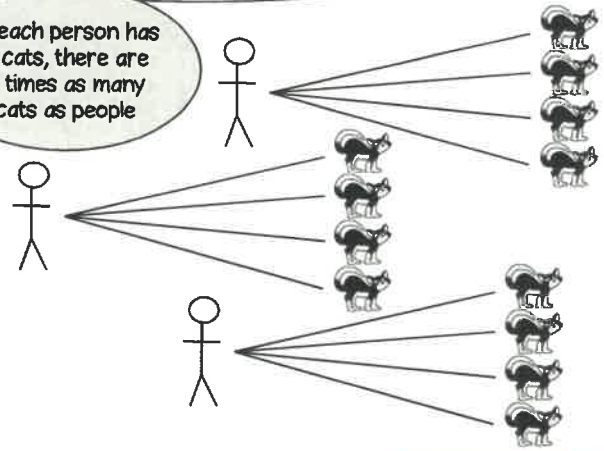




4 + 4 + 4 = 12

One to many correspondence

If each person has 4 cats, there are 4 times as many cats as people

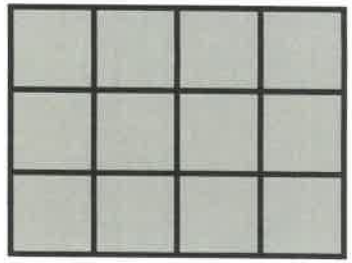


People	Cats
1	4
2	8
3	12

Arrays

4 x 3 = 12

3 x 4 = 4 x 3



Count in ones

1, 2, 3, **4**, 5, 6, 7, **8**, 9, 10, 11, **12**

Count in fours

4, 8, 12

Use a known fact

If 2 x 3 is 6, then
4 x 3 is double 6.

How shall I divide?

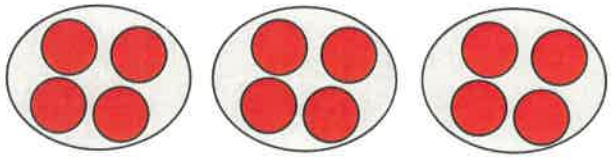
$12 \div 3 = 4$

Recall and use 2x, 5x and 10x tables

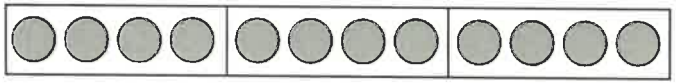
Sharing

12 shared into 3 equal groups

There are 12 cats.
Three people each have the same number of cats.
How many do they have each?



Bar model



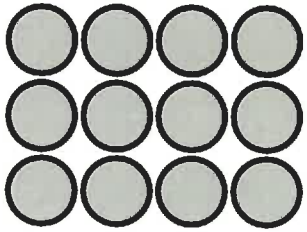
12		
4	4	4

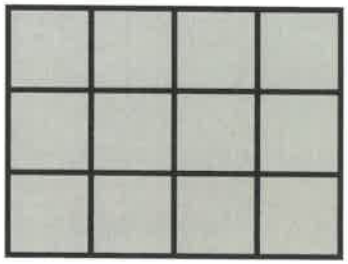
Link to fractions.
One third of 12 is 4

1 for you, 1 for you, 1 for you...

Grab a group of 3, grab a group of 3...

12 can be described as
3 columns of 4
or 4 rows of three

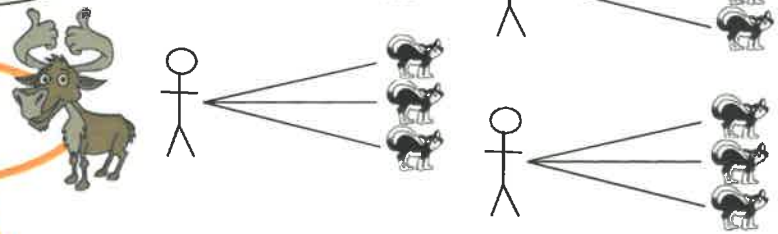


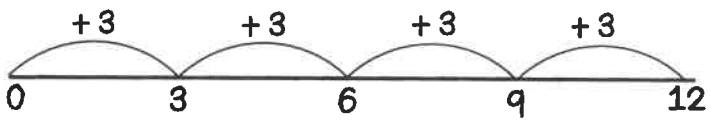


Grouping

How many groups of 3 are there in 12?

There are 12 cats.
Each person owns 3 cats.
How many people are there?





If I know $3 \times 4 = 12$
then I know $12 \div 3 = 4$