St Michael's Years 4 Maths Parent Information

4 NPV-1

10 hundreds is equal to 1 thousand.

10 hundreds are equivalent to 1 thousand so 1,000 is 10 times the size of 100.

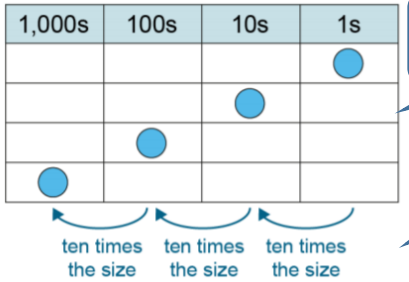
1,800 and 3,000 are multiples of 100, because they are each equal to a whole number of hundreds.

10 hundreds is equal to 1,000.

18 hundreds is equal to 10 hundreds and 8 more hundreds.

So 18 hundreds is equal to 1,000 and 8 more hundreds, which is 1,800.

Multiples of 100 have zeros in both the tens and ones places.

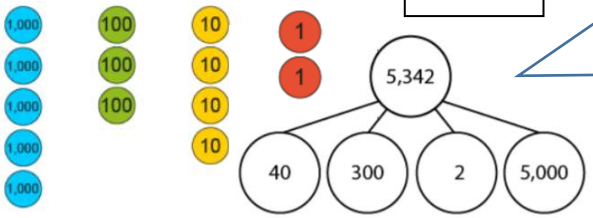


1000 is 10 times the size of 100.

1,800 is 10 times the size of 180.

Place Value in 4 digit numbers.

4 NPV-2



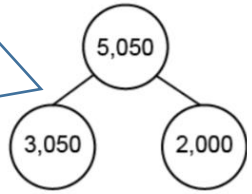
40 + 300 + 2 + 5000 is equal to 5,342, not 4,325.

$5,342 - 300 = \square$

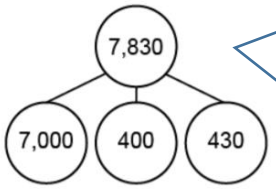
$5,342 - \square = 5,302$

Use subtraction to find the missing parts.

4 digit numbers can be partitioned in different ways.



2,000 + 3,050 = 5,050



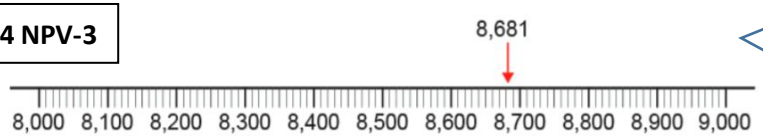
7,830 – 400 = 7,430

Partitioning can be written as addition and subtraction facts.

Identify the multiple of 100 and 1000 before and after any 4 digit number.

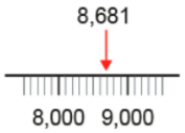
The previous multiple of 1000 is 8000. The next multiple of 1000 is 9000.

4 NPV-3



The previous multiple of 100 is 8600. The next multiple of 100 is 8700.

Without using a number line, identify the multiple of 100 or 1000 before and after any 4 digit number.



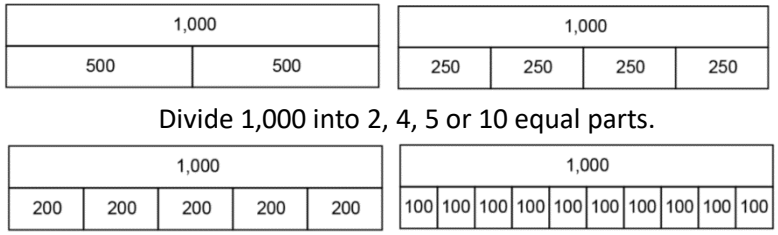
The closest multiple of 1,000 is 9,000.

8,681 rounded to the nearest thousand is 9,000.

2,100, 2,000, 1,900

2,385, 2,395, 2,405

Count forwards and backwards in steps of 1, 10 or 100 from any 4 digit



A litre is 1000 millilitres

A kilometre is 1000 meters

A kilogram is 1000 grams

…700, 800, 900, 1000…

…1400, 1200, 1000, 800…

Practise counting in multiples of 100, 200, 250, and 500 from 0, or from any multiple of these numbers, both forwards and backwards.

…3000, 2500, 2000, 1500…

…1500, 1750, 2000, 2250…

6+4 = 10 so 600+400 = 1000.

I can use 10 – 7 to work out 1000 - 700.

If I run 200m at school every day, in a week I will run 1km.

4 NPV-4

Solve equations and problems based on partitioning 1000 into multiples of 100, 200 and 500.

If each loaf needs 200g of flour, I can make 5 loaves from a 1kg bag of flour.

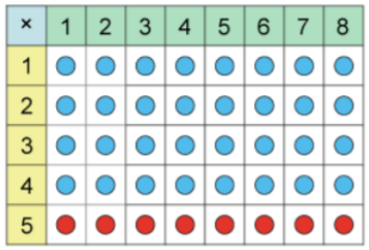
Ten 200ml cans of lemonade contain the same amount as one 2 litre bottle.

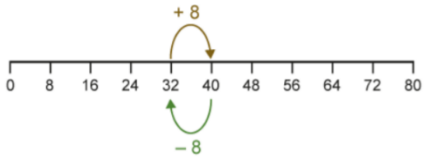
Remember: **1000 = 250 + 750**; **1000 – 250 = 750**; **250 = 1000 - 750**

Factors can be written in either order, the **product** remains the same.

$3 \times 4 = 12$ or $4 \times 3 = 12$

factor product factor product





The difference between 4 X 8 and 5 X 8 is eight.

I can work out 28 ÷ 7 by using the multiplication fact 4 X 7=28.

64 is 8 multiplied by 8 so 64 divided by 8 must be 8.

Use multiplication facts to derive division facts.

4 NF - 1

4 NF - 2 Division with remainders.

$13 \div 4 = 3$ r 1

dividend divisor quotient remainder

If the dividend **is a multiple** of the divisor there is **no remainder**.

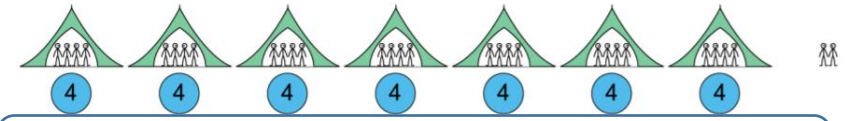
If the dividend **is not a multiple** of the divisor, there **is a remainder**.

The **remainder** is always **less than** the **divisor**.

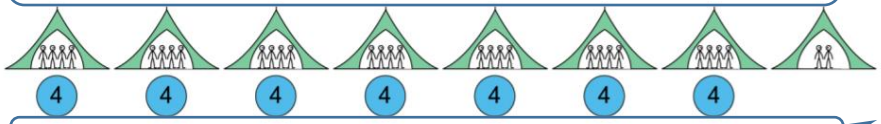
Total number of apples (dividend)	Number of apples in each tray (divisor)	Number of trays (quotient)	Number of apples left over (remainder)	Equation
12	**4**	3	**0**	$12 \div 4 = 3$
13	**4**	3	**1**	$13 \div 4 = 3$ r 1
14	**4**	3	**2**	$14 \div 4 = 3$ r 2
15	**4**	3	**3**	$15 \div 4 = 3$ r 3
16	**4**	4	**0**	$16 \div 4 = 4$
17	**4**	4	**1**	$17 \div 4 = 4$ r 1
18	**4**	4	**2**	$18 \div 4 = 4$ r 2
19	**4**	4	**3**	$19 \div 4 = 4$ r 3
20	**4**	5	**0**	$20 \div 4 = 5$

Correctly apply answers from calculations to real life problems.

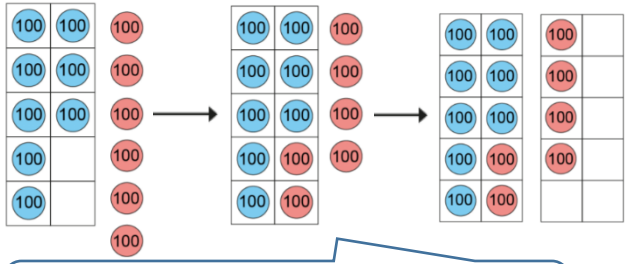
To work out how many 4 person tents are needed for 30 scouts, calculate **30 ÷ 4**. 30 represents the number of scouts. 4 represents how many scouts fit in each tent.



30 ÷ 4 = 7 r 2. 7 represents the number of tents with four scouts in them. The 2 represents the scouts that don't have a tent.



Another tent is required for the 2 left-over scouts. 8 tents are needed.



8 + 6 is 14 so eight hundred plus 6 hundreds must be fourteen hundreds. Fourteen hundreds is 1,400.

$8 + 6 = 14$
$800 + 600 = 1{,}400$
$14 - 8 = 6$
$1{,}400 - 800 = 600$
$14 - 6 = 8$
$1{,}400 - 600 = 800$

Scale up known addition and subtraction facts by a **factor of one hundred**.

$12 \div 3 = 4$ so $1{,}200 \div 3 = 400$

3 X 4 is 12 so 300 X 4 is 1.200

6 + 8 = 14 so 600 + 800 = 1,400

Use addition, subtraction, multiplication and division facts and knowledge of place value.

9 – 6 is 3 so 900 – 600 is 300.

3 times 5 hundreds is equal to 15 hundreds.

15 hundreds is equal to 1500

3 times 5 is equal to 15.

$15 \div 3 = 5$
$1{,}500 \div 300 = 5$
$1{,}500 \div 3 = 500$

If I multiply the dividend by 100 and the divisor by 100, the quotient remains the same.

If I multiply the dividend by 100 and keep the divisor the same, I must multiply the quotient by 100.

4 NF - 3

$3 \times 5 = 15$
$300 \times 5 = 1{,}500$

If I multiply one factor by 100, I must multiply the product by 100.

4 MD - 1

Multiply and divide by 10 and 100.

Multiplying by 100, makes something 100 times **bigger**
Dividing by 100 makes something 100 times **smaller**.

1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

× 10 ÷ 10

80 × 10 = 800 80 ÷ 10 = 8

23 multiplied by 100 is equal to 2,300.

23 X 100 = 2300

First we had 23 ones. Now we have 23 hundreds."

23, made 100 times the size, is 2,300.

1,450 divided by 10 is equal to 145.

1450 ÷ 10 = 145

1,450 is 10 times the size of 145

First we had 145 tens. Now we have 145 ones.

×100 ÷ 100

1,000s	100s	10s	1s
			8
	8	0	0

8 × 100 = 800 800 ÷ 100 = 8

$13 \times 10 = 130$

$130 \times 10 = 1{,}300$

$13 \times 100 = 1{,}300$

$130 \div 10 = 13$

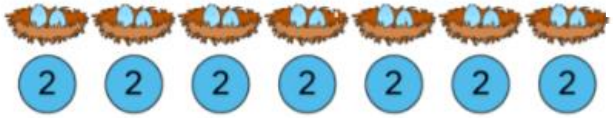
$1{,}300 \div 10 = 130$

$1{,}300 \div 100 = 13$

2 groups of 3 is equal to 6 $2 \times 3 = 6$

3, two times is equal to 6 $3 \times 2 = 6$

2 groups of 3 is equal to 3, two times.



$2 \times 7 = 14$

$14 \div 7 = 2$

14 shared between 7 is equal to 2.

If we swap the values of the divisor and quotient, the dividend remains the same.

$14 \div 7 = 2$ $14 \div 2 = 7$

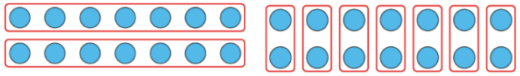
Factor times factor is equal to product

The order of the factors does not alter the product.

The 2 represents number of eggs in each nest.

The 7 represents the number of nests.

The 14 represents the total number of eggs.



4 MD - 2

2 groups of 7 is equal to 14

2 groups of 7 is equal to 7 groups of 2.

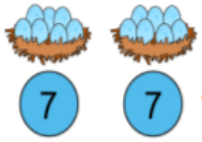
7 groups of 2 is equal to 14

2 × 7 = 14 — 2 groups of 7

7 × 2 = 14 — 7 groups of 2

The 7 represents the number of eggs in each nest.

$7 \times 2 = 14$



$14 \div 2 = 7$

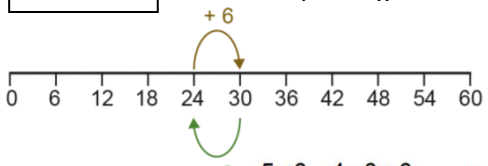
The 2 represents the number of nests.

The 14 represents the total number of eggs.

14 divided into groups of 7 is equal to 2

4 MD - 3

5 X 6 is six more than 4 X 6. Find 5 X 6 by adding six to 4 X 6.



×	1	2	3	4	5	6
1						
2						
3						
4						
5						

$5 \times 6 = 3 \times 6 + 2 \times 6$

$3 \times 6 = 5 \times 6 - 2 \times 6$

$2 \times 6 = 5 \times 6 - 3 \times 6$

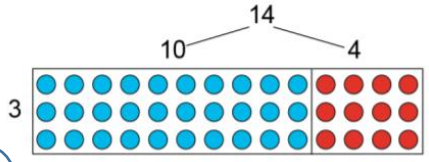
$5 \times 6 = 4 \times 6 + 6$ or $5 \times 6 = 4 \times 6 + 1 \times 6$

$4 \times 6 = 5 \times 6 - 6$ or $4 \times 6 = 5 \times 6 - 1 \times 6$

To understand equations like these, remember to **always multiply before adding or subtracting**.

5 is equal to 3 plus 2, so 5 times 6 is equal to 3 times 6 plus 2 times 6. This is called the **distributive** law.

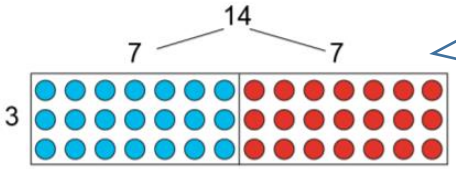
Use the **distributive law** to work out **unknown multiplication and division facts.**



$14 \times 3 = 10 \times 3 + 4 \times 3$
$= 30 + 12$
$= 42$

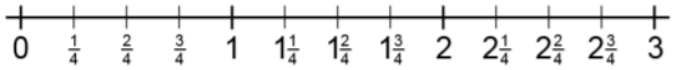
20 X 6 is 120. I can work out 21 X 6 by adding 6 more to 120

$14 \times 3 = 7 \times 3 + 7 \times 3$
$= 21 + 21$
$= 42$

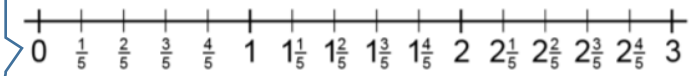


To work out 65 ÷ 5, I know that this is 3 more fives than 10 times 5.

Use marked number lines to support counting in unit fractions beyond



….two quarters, three quarters, one whole, one and one quarter…..



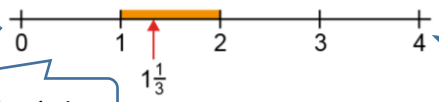
….one and three fifths, one and four fifths, two, two and one fifth…..

4 NF - 1

Count **the gaps** between whole numbers to deduce how large each interval is.

Each interval is divided into 4 equal parts, so we count in quarters.

$1\frac{1}{3}$ is between 1 and 2



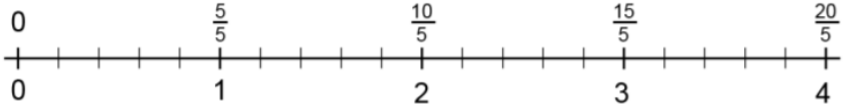
The next whole number is 2

The previous whole number is 1

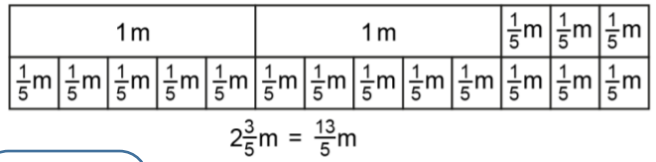
Use the relationship between the **numerator** and the **denominator** to position fractions and mixed numbers on the number line. Determine whether the numerator **is a large or small part** of the denominator.

$1\frac{7}{8}$ is close to 2, but that $1\frac{7}{30}$ is closer to 1.

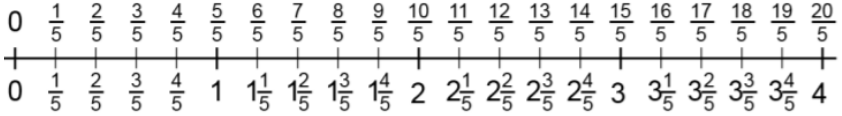
When the **numerator** is **a multiple** of the **denominator**, the **fraction** is **equivalent** to a **whole number**.



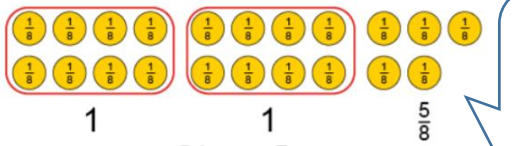
There are 2 groups of five-fifths, which is 10 fifths and 3 more fifths.



Improper fractions have a **numerator** that is **greater than the denominator**.



We have 21 eighths. 8 eighths is equal to 1 (whole).”



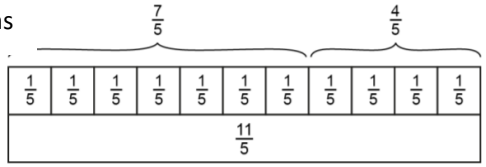
$\frac{21}{8} = 2\frac{5}{8}$

21 eighths is equal to 2 groups of 8 eighths, and 5 more eighths. This is 2 and 5 eighths.

4 NF - 2

If it is **not equivalent** to a **whole number**, an **improper fraction** can be written as a **mixed number**.

Adding and **subtracting** fractions



7 one-fifths plus 4 one-fifths is equal to 11 one-fifths.

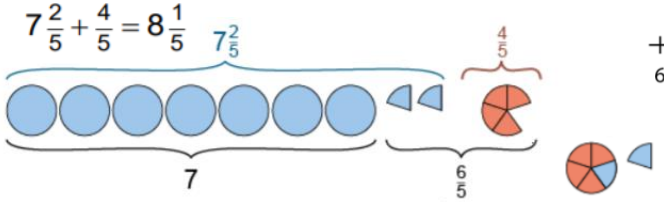
When adding fractions with the same denominators, just add the numerators

$$\frac{7}{5} + \frac{4}{5} = \frac{11}{5}$$

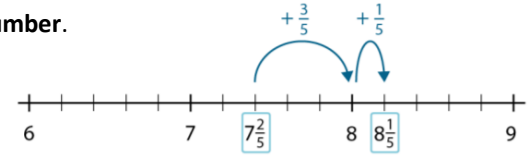
When subtracting fractions with the same denominators, just subtract the numerators.

Adding and **Subtracting** fractions **crossing the whole number**.

$7\frac{2}{5} + \frac{4}{5} = 8\frac{1}{5}$

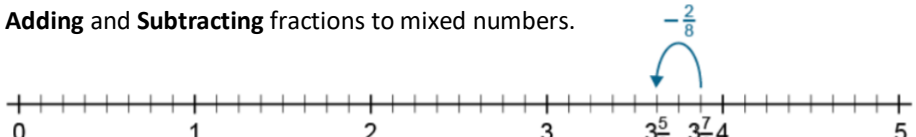


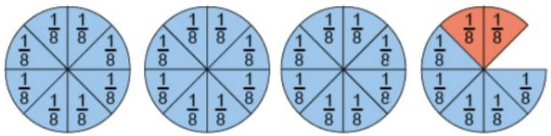
Add the fractions first to make a mixed number, then add the remaining whole number.



Add to reach the next whole number, then add the remaining fraction.

Adding and **Subtracting** fractions to mixed numbers.





$3\frac{7}{8} - \frac{2}{8} = 3\frac{5}{8}$

4 NF - 3

$8\frac{1}{5} - \frac{4}{5} = 8\frac{1}{5} - \frac{1}{5} - \frac{3}{5}$

$= 8 - \frac{3}{5}$

$= 7\frac{2}{5}$

First partition the subtrahend and subtract to leave a whole number. Then subtract the remainder of the subtrahend.

First partition the minuend and subtract from the whole number part. Then add the fractional part.

$8\frac{1}{5} - \frac{4}{5} = 8 - \frac{4}{5} + \frac{1}{5}$

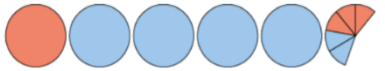
$= 7\frac{1}{5} + \frac{1}{5}$

$= 7\frac{2}{5}$

Adding and **Subtracting** mixed numbers.

$4\frac{2}{9} + 1\frac{3}{9} = 5\frac{5}{9}$

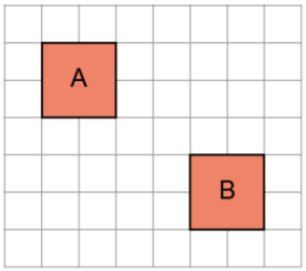
Add the whole numbers, add the fractions and combine them.



Subtract the whole numbers, subtract the fractions and combine them.

$5\frac{5}{9} - 1\frac{3}{9} = 4\frac{2}{9}$

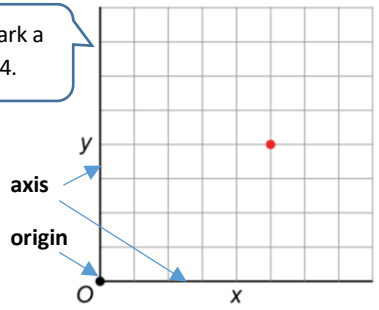
Describe **translations** (changing the position of an object on a grid) in terms of the **number of squares up/down** and **left/right**.



The polygon has been translated 4 squares to the right and 3 squares down.

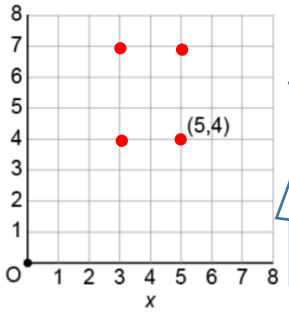
Start at the origin and mark a point along 5, and up 4.

Mark **positions** on a grid following directions from the **origin** – the point at which the **axis** meet.



On **numbered** axis, describe **positions** on the grid using **coordinates** and follow coordinates to **mark points** on the grid. Use coordinate instructions **to draw shapes.**

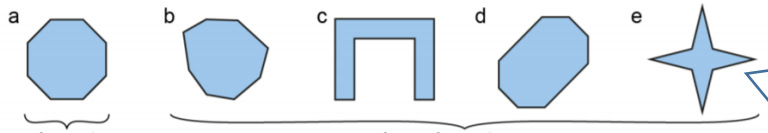
4 G-1



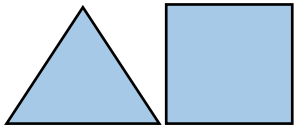
Draw a rectangle with vertices at (5, 4), (3, 4), (3, 7) and (5, 7).

First count along the x-axis, then count along the y-axis.

This is a **regular polygon**, because **all** of the **sides are the same length**, and **all** of the **interior angles are equal**.



This is an **irregular polygon**, because even though all of the sides are the same length, the **interior angles are not equal**.



4 G-2

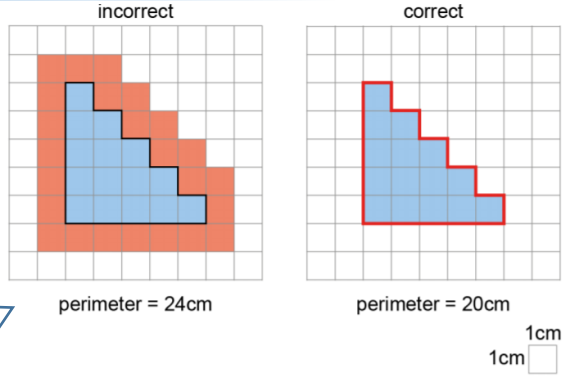
Recognise **regular** and **irregular** polygons.

An equilateral triangle is a regular polygon.
A square is a regular quadrilateral.

The perimeter is the total distance around the outside of a shape.

Choose and use the **correct strategy** for **calculating** the **perimeter** of a shape.

For shapes like these, made up of squares on a grid, count the number of centimetre lines around the perimeter.

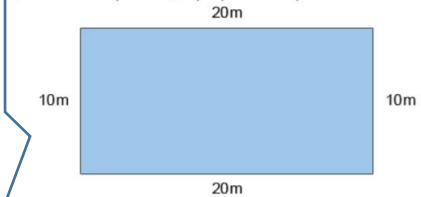


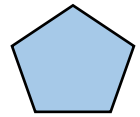
For a rectangle, add the length to the width and double the result.

Alternatively, double the length, double the width and add them together.

$\text{perimeter} = 2 \times (\text{length} + \text{width})$

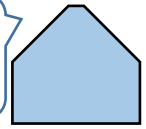
$\text{perimeter} = (2 \times \text{length}) + (2 \times \text{width})$

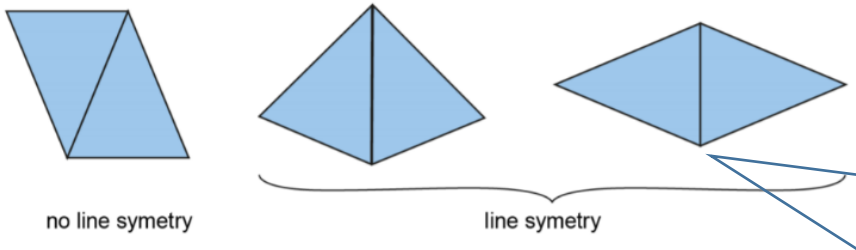




For a regular polygon, find the length of one side and multiply it by the number of sides.

For an irregular polygon, find the length of all the sides and add them together.



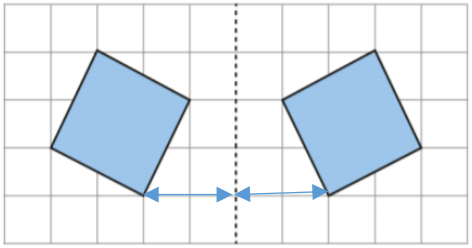


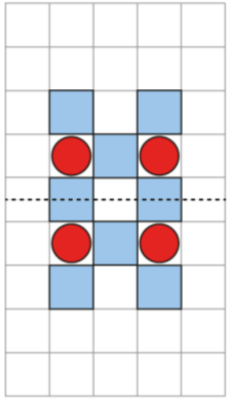
A **line of symmetry** exists where a **shape** can be **split** into **two parts** which are a **reflection of one another**.

4 G-3

This is a line of symmetry because it splits the shape into two equal parts which are mirror images.

Draw a **reflection** of a shape on a grid by **measuring the distance** from each **vertex to the mirror line** and **marking the reflection** of each vertex the same distance from the mirror line.





Draw a **reflection** of a pattern on a grid by **measuring the distance** from each shape in the pattern **to the mirror line** and putting a reflection of that shape the same distance from the mirror line on the opposite side.