
WELCOME
we're glad you're here


LET
the
ADVENTURE
Begin

Chapter 4

Mathematics and Geometry


Pirates of the Carribbean

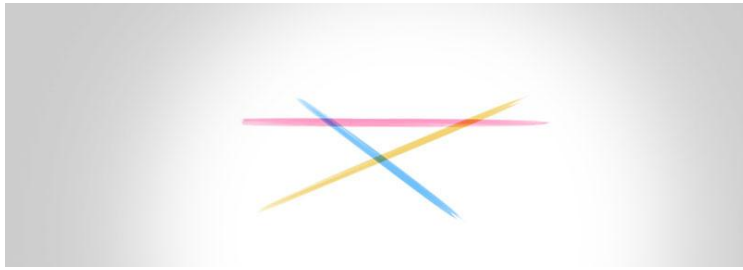
Lines are fundamental elements in geometry, characterized by their length and direction.

length

direction

Here are some common types of lines:

Straight line



A line that extends definitely in both directions and does not curve.

Curved line

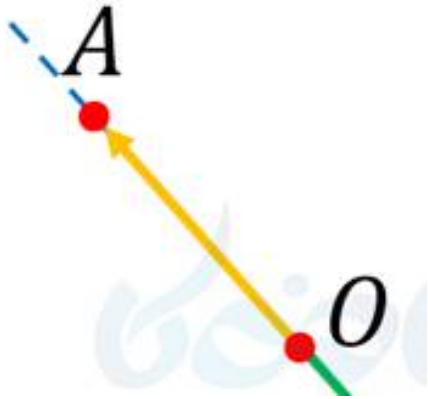
A curved line is a type of line that does not follow a straight path.

Curved line

A part of a line that has one endpoint and extends infinitely in one direction.

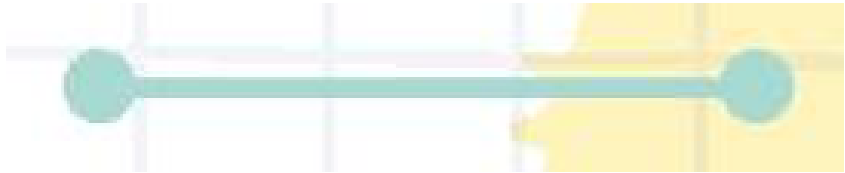
Ray

Line Segment



A type of line that has two endpoints.

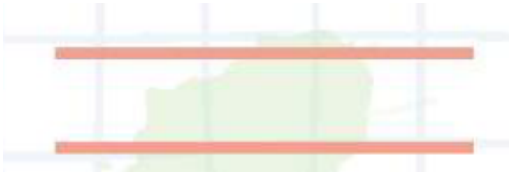
Line Segment



Parallel lines

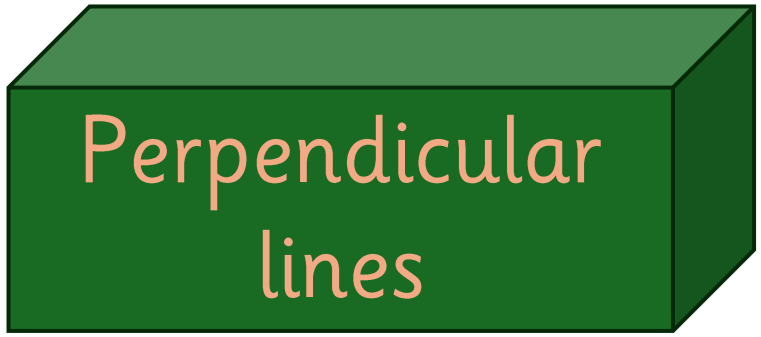
Lines in a same plane that do not intersect. They remain equidistant from each other at all points.

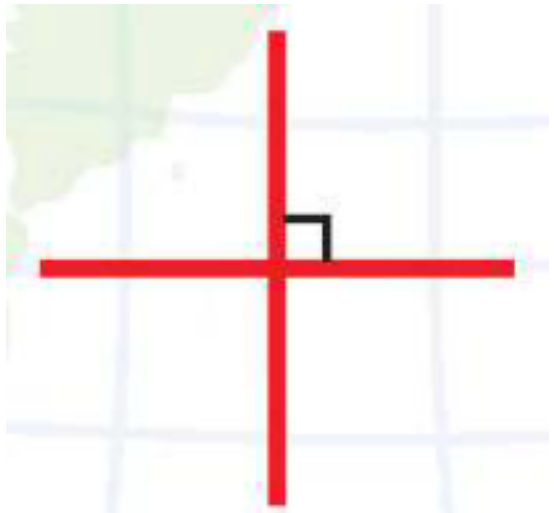
Parallel lines



Perpendicular lines

Lines that intersect at a right angle (90 degrees).

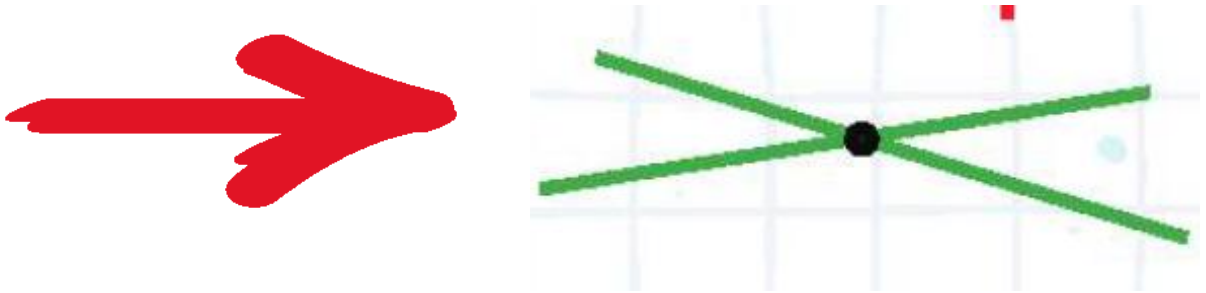




Intersecting lines

Lines that cross or meet at a common point.

Intersecting lines



Pi_rates of the Caribbean

Lines are fundamental elements in geometry, characterized by their length and direction. Here are some common types of lines:

Straight Line:

A line that extends indefinitely in both directions and does not curve.

Curved line:

A curved line is a type of line that does not follow a straight path.

Ray:

A part of a line that has one endpoint and extends infinitely in one direction.

Line Segment:

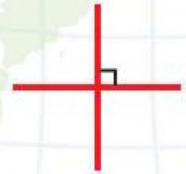
A part of a line that has two endpoints.

Parallel Lines:

Lines in the same plane that do not intersect. They remain equidistant from each other at all points.

Perpendicular Lines:

Lines that intersect at a right angle (90 degrees).



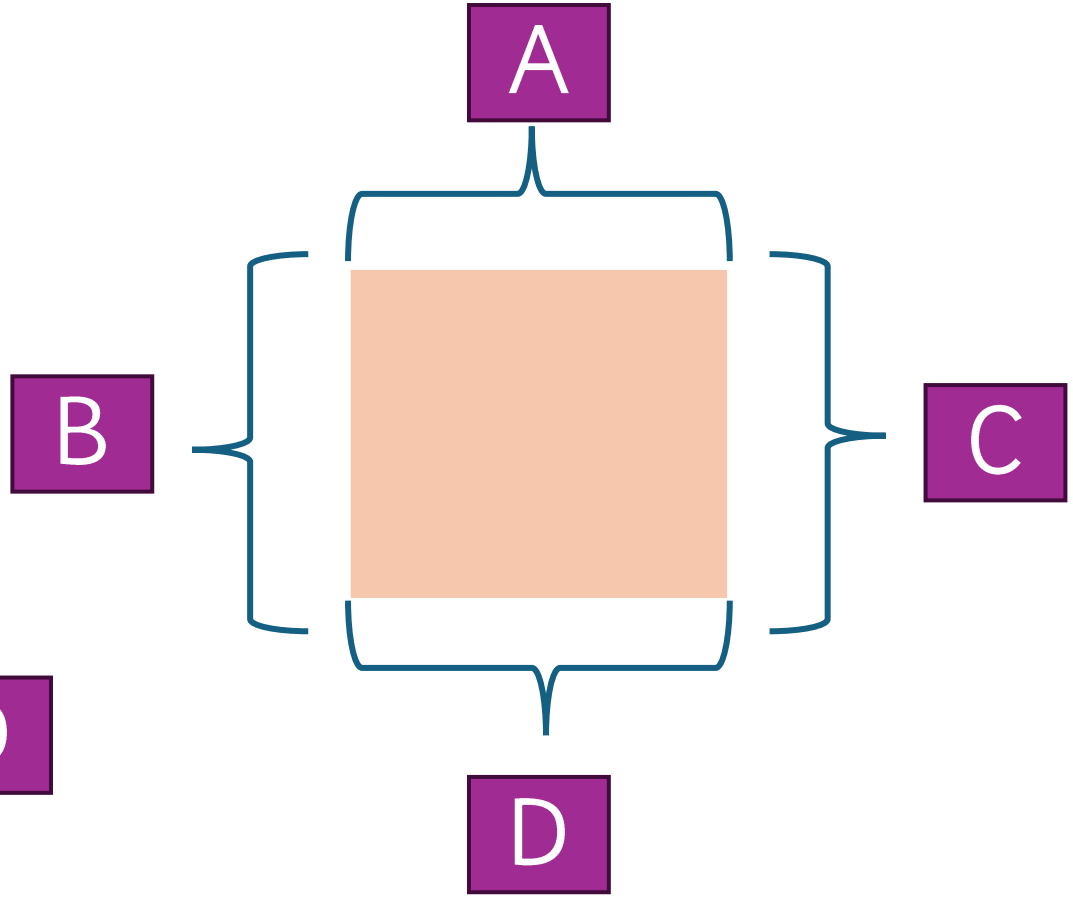
Intersecting Lines:

Lines that cross or meet at a common point.

Common 2D shapes

square

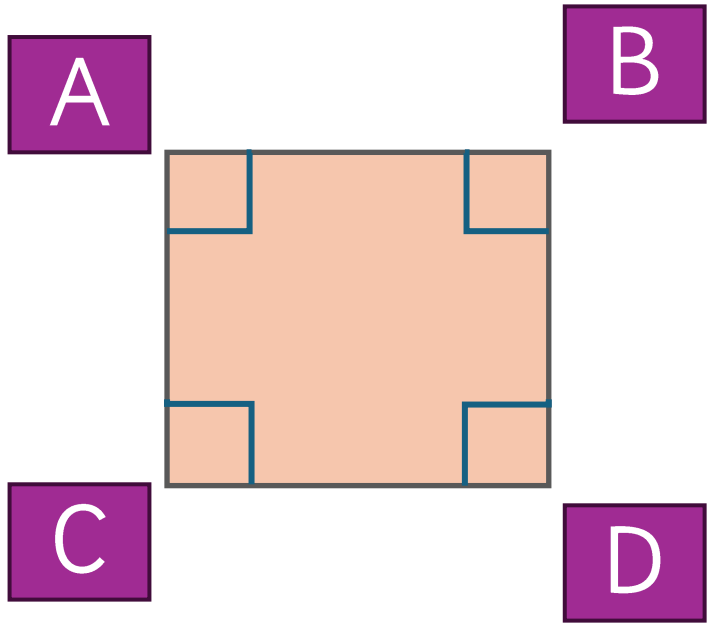
1) All sides are equal in length.



A = B = C = D

Common 2D shapes

square



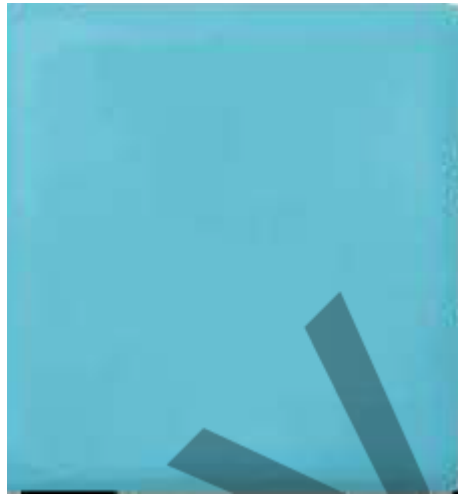
2) All angles are right angles. (90 degrees.)

A = B = C = D = 90 degrees

Common 2D shapes

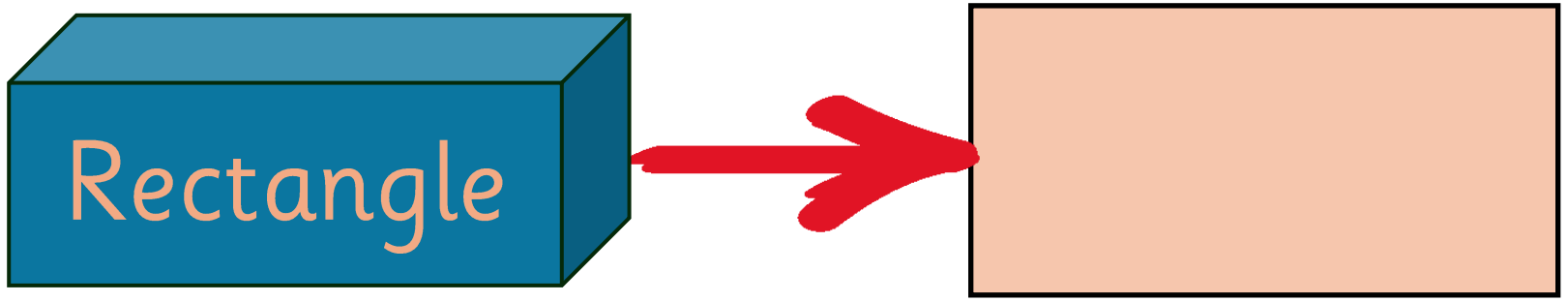
square

3) Opposite sides are parallel and equal in length.



Common 2D shapes

Rectangle



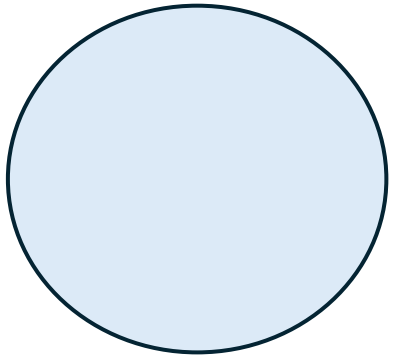
1) Opposite sides are equal in length.

2) All angles are right angles. (90 degrees.)

3) Opposite sides are parallel.

Common 2D shapes

Circle



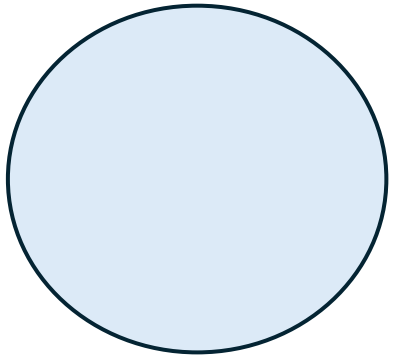
1) No straight sides; consists of curved boundary.

2) No angles.

3) All points on the boundary are equidistant from the centre.

Common 2D shapes

Circle



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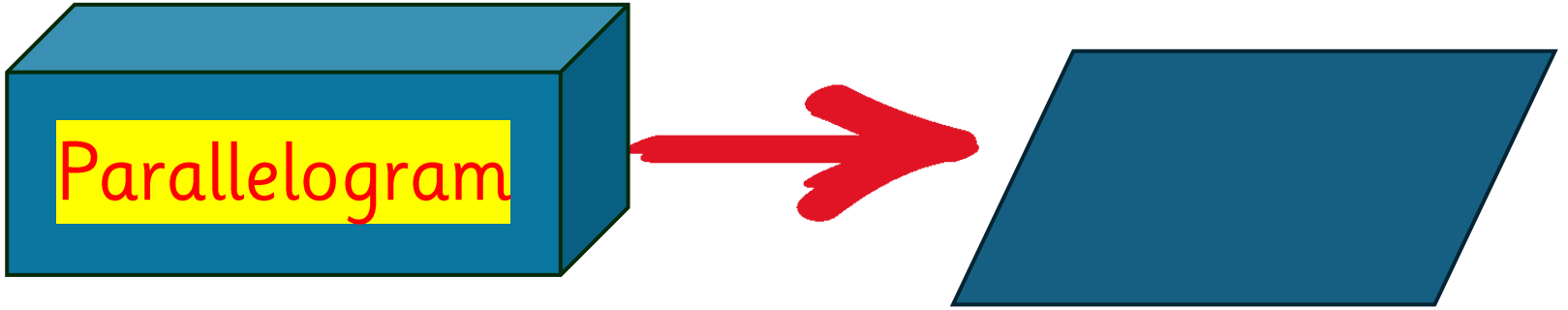
Common 2D shapes



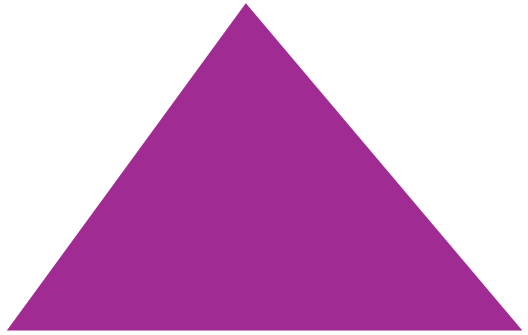
1) Opposite sides are equal in length.

2) Opposite angles are equal.

3) Opposite sides are parallel.

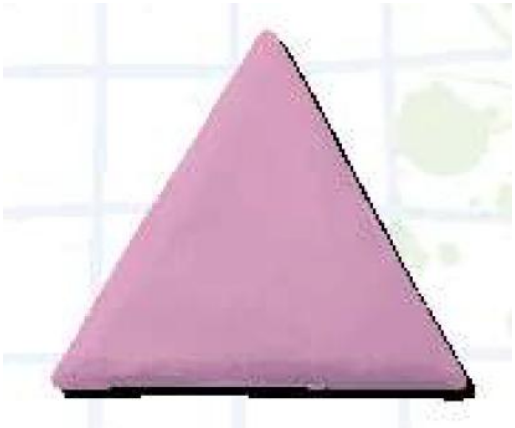
Common 2D shapes

Triangle



1) Three sides.

2) Three angles.



3) The sum of interior angles is always 180.

Common 2D shapes

Trapezoid

1) At least one pair of parallel sides.

2) All sides are not equal in length. (Unless it's isosceles trapezoid.)

Common 2D Shapes

Square

- All sides are equal in length.
- All angles are right angles (90 degrees).
- Opposite sides are parallel and equal in length.

Rectangle:

- Opposite sides are equal in length.
- All angles are right angles (90 degrees).
- Opposite sides are parallel.

Circle:

- No straight sides; consists of a curved boundary.
- No angles.
- All points on the boundary are equidistant from the center.

Parallelogram:

- Opposite sides are equal in length.
- Opposite angles are equal.
- Opposite sides are parallel.

Triangle:

- Three sides.
- Three angles.
- The sum of interior angles is always 180 degrees.

Trapezoid

- At least one pair of parallel sides.
- No sides are equal in length (unless it's an isosceles trapezoid).

Common 3D shapes

face

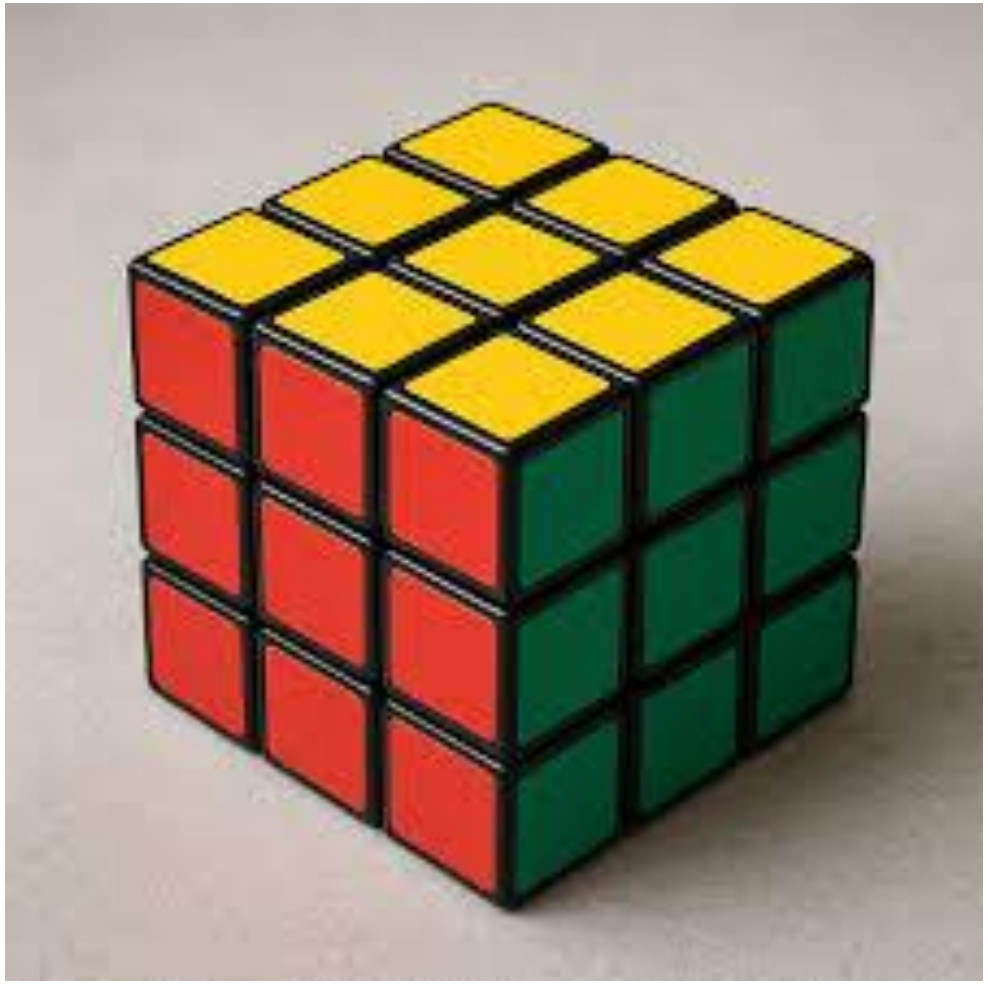
Common 3D shapes

vertex

Common 3D shapes

edge

What is this shape?



Common 3D shapes

Cube

All faces are squares.

All edges are equal in length.

All angles are right angles.

What is this shape?

Common 3D shapes

Sphere

A perfectly round shape.

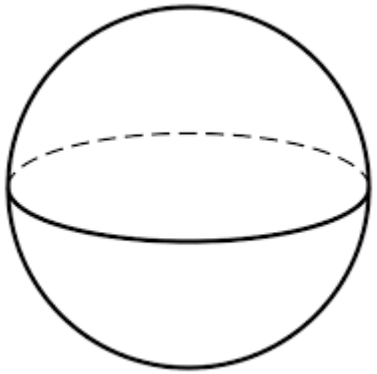
No edges or vertices.

All points on the surface are equidistant from the center.

Common 3D shapes

Sphere

All points on the surface are equidistant from the center.



What are these shapes?

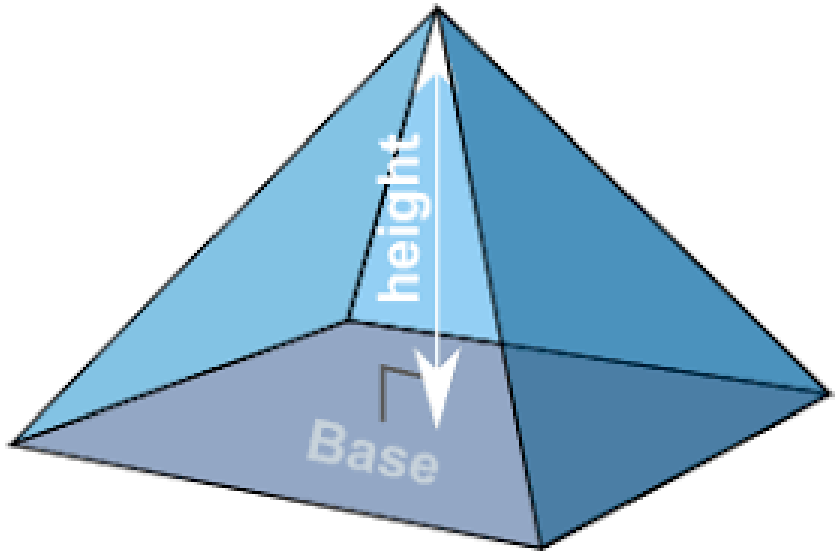
What are these shapes?

Common 3D shapes

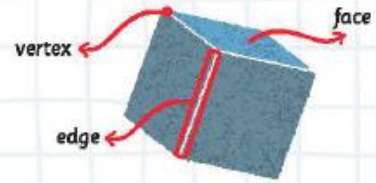
Pyramid (with a square base)

Five faces.

Five vertices.



Common 3D Shapes



Cube:

- All faces are squares.
- All edges are equal in length.
- All angles are right angles.

Sphere:

- A perfectly round shape.
- No edges or vertices.
- All points on the surface are equidistant from the center.

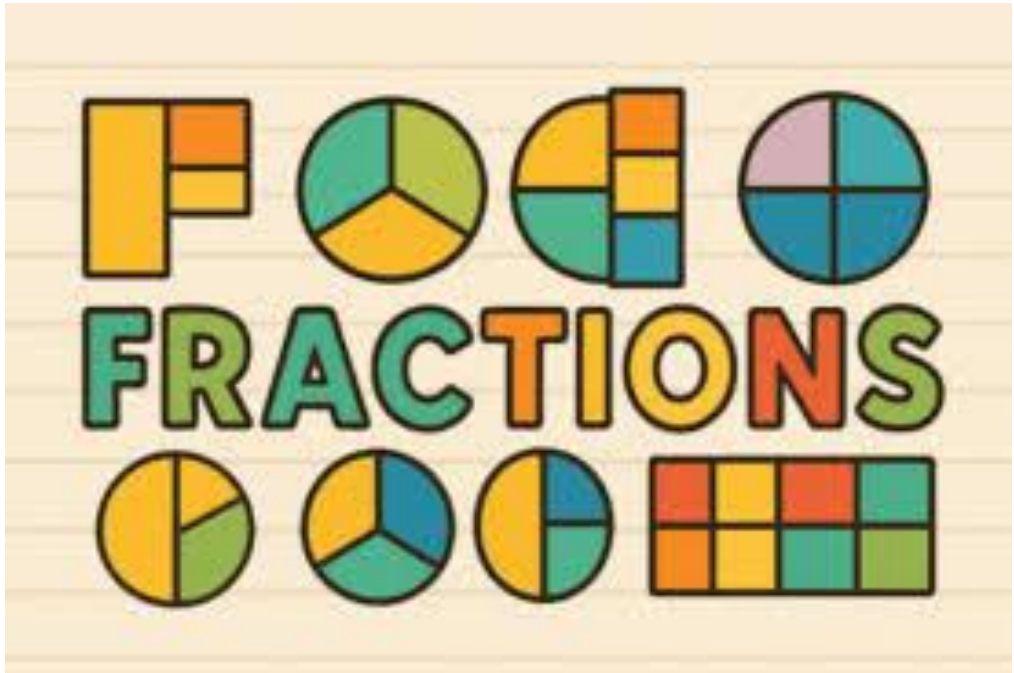
Cylinder:

- No vertices.
- Two circular faces.

Pyramid (with a square base):

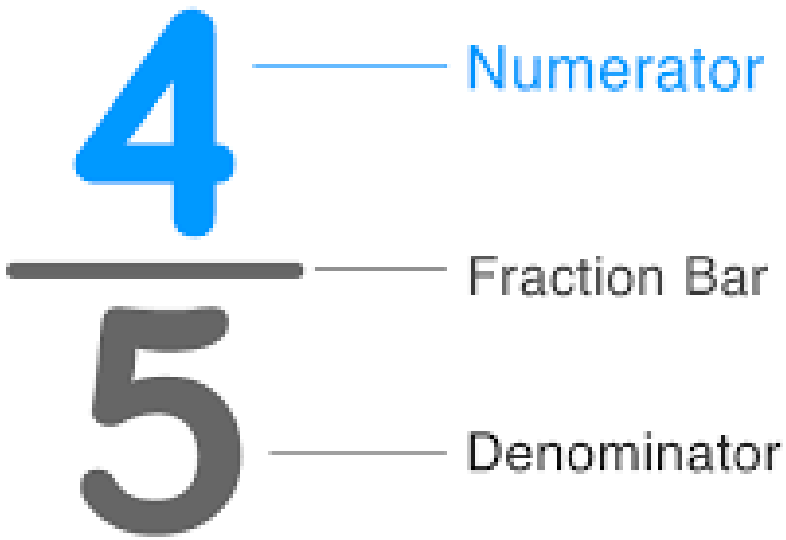
- Five faces.
- Five vertices.

How to Read Fractions in English



Fraction	How to read it
$\frac{1}{2}$	half / one half
$\frac{1}{3}$	a third / one third
$\frac{1}{4}$	a quarter / one quarter
$\frac{1}{5}$	one fifth
$\frac{2}{3}$	two thirds
$\frac{3}{7}$	three sevenths

Numerator



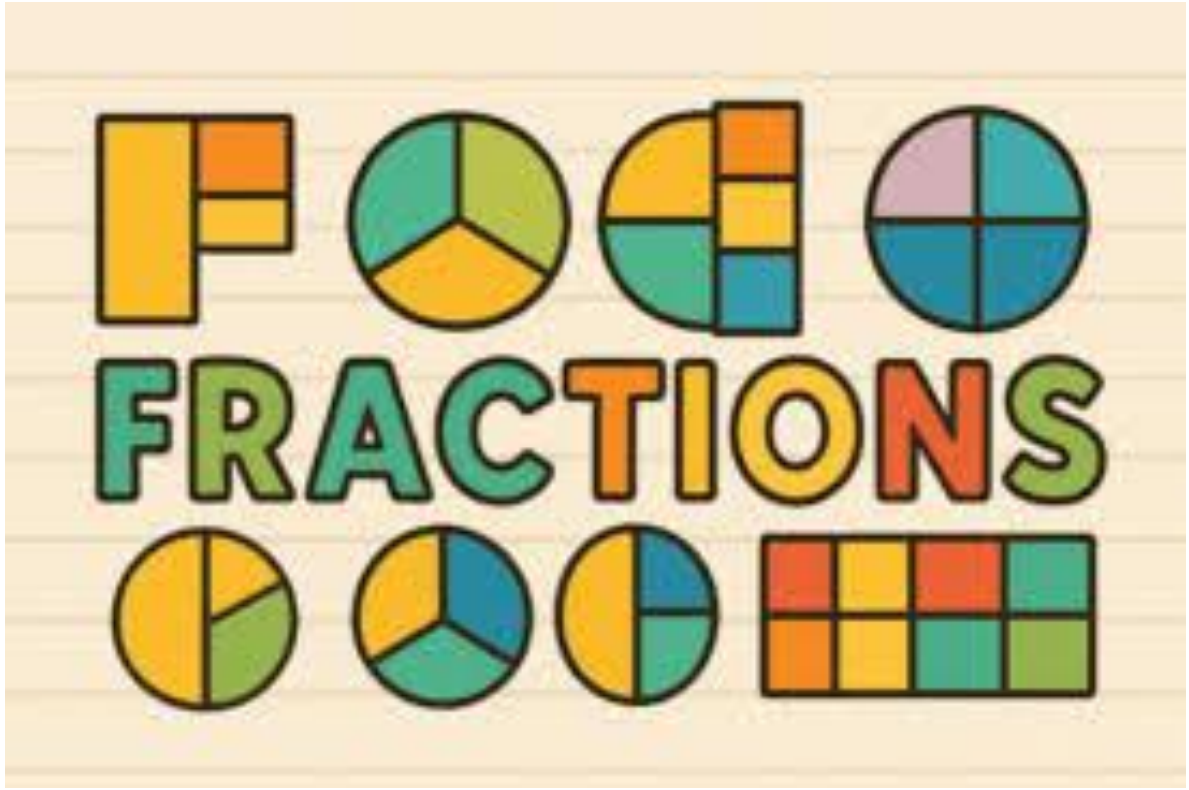
cardinal number (one, two, three...)

Common Denominator

$$\frac{2}{9} \quad \frac{5}{9} \quad \frac{8}{9}$$

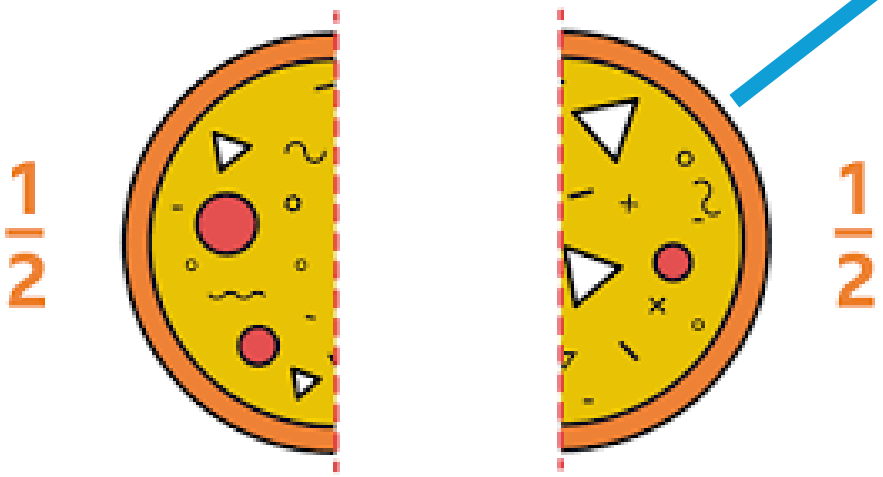
MATH MONKS

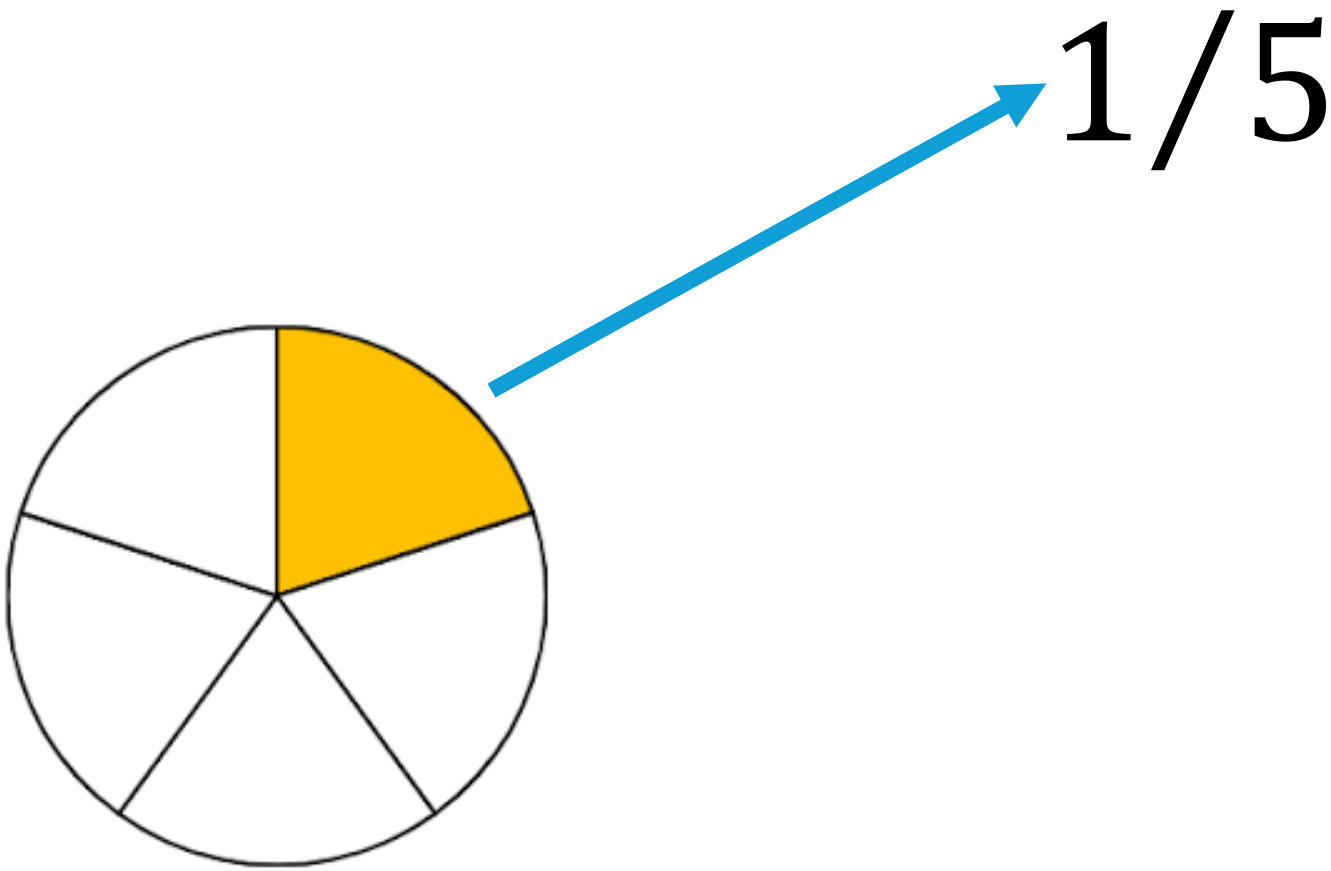
ordinal number (third, fourth, fifth...)



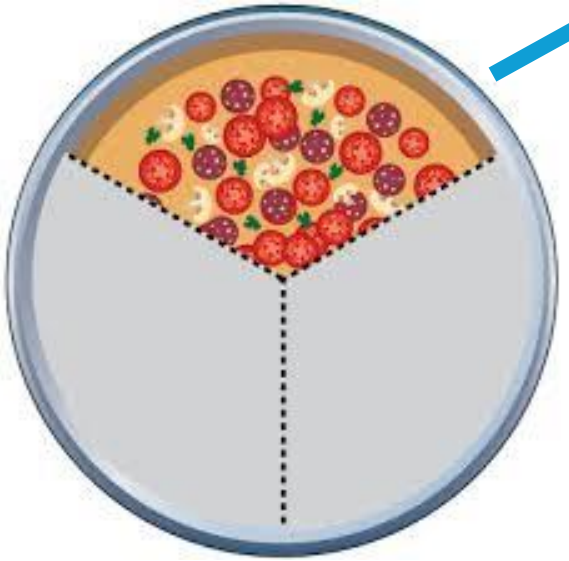
This is how we read the fractions:

1/2

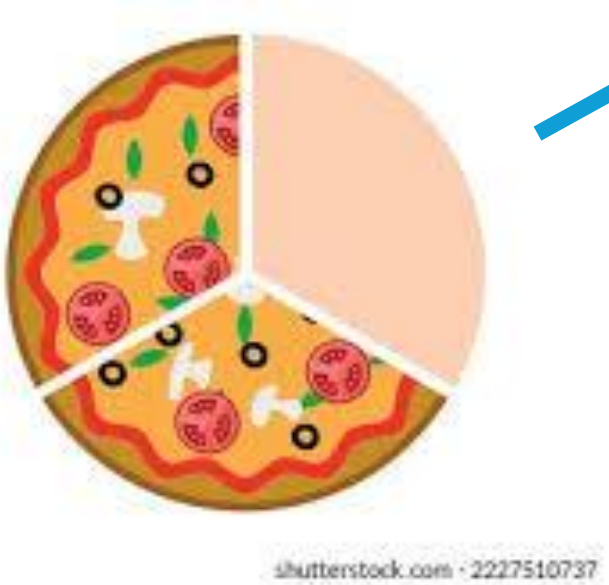



1/5

1/3



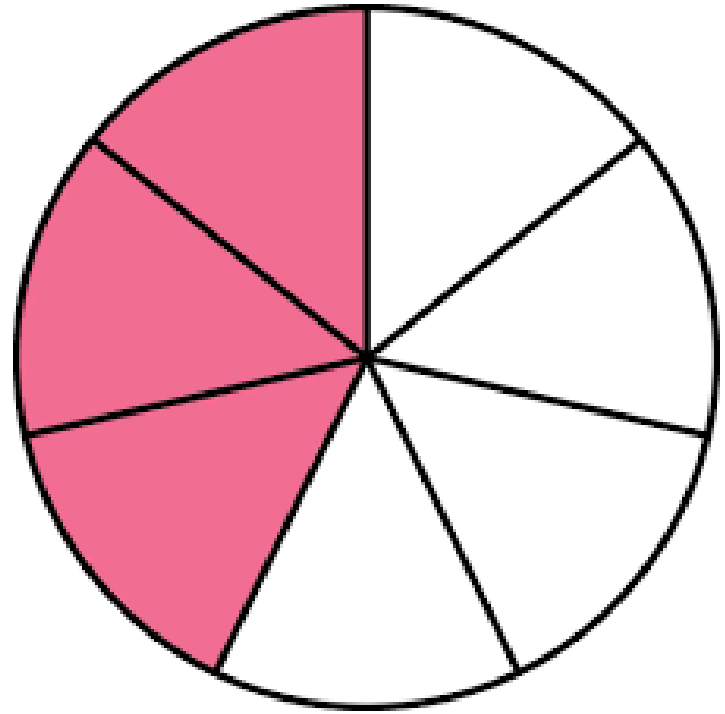
2/3



$\frac{2}{3}$

1/4

3/7



Fractions

This is how we read *fractions*

$\frac{1}{2}$: *half / one half*

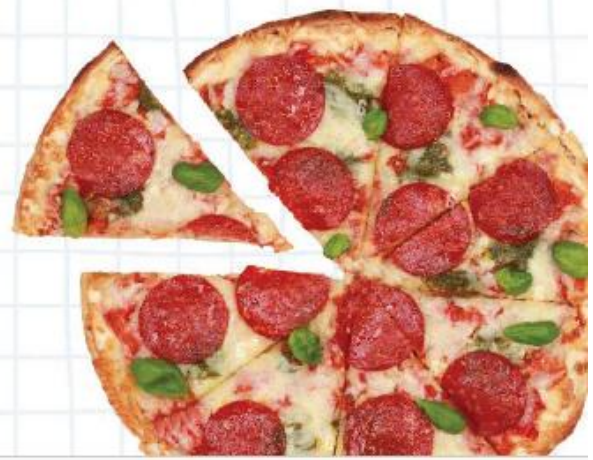
$\frac{1}{5}$: *one fifth*

$\frac{1}{3}$: *a third/ one third*

$\frac{2}{3}$: *two thirds*

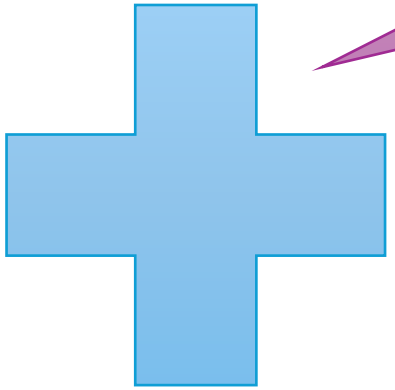
$\frac{1}{4}$: *a quarter/ one quarter*

$\frac{3}{7}$: *three sevenths*



This is how read mathematical equations

Addition



$$2 + 3 = 5$$

Two plus three equals five

This is how read mathematical equations

Subtraction

$$8 - 4 = 4$$

Eight minus four equals four

This is how read mathematical equations

Multiplication

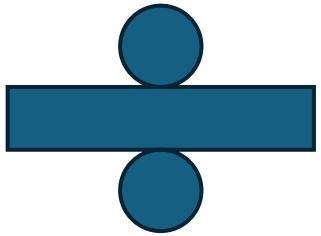
$2 \times 3 = 6$

Two times Three equals six.

Two multiplied by Three equals six.

This is how read mathematical equations

Division



4 ÷ 2 = 2

four divided by two equals two.

This is how read mathematical equations

$2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$

Two to the power of five equals thirty-two.

$4^2 = 4 \times 4 = 16$

Four squared equals sixteen.

$4^3 = 4 \times 4 \times 4 = 64$

Four cubed equals sixty-four.

This is how read mathematical equations

$2 \times (\text{Length} + \text{Width})$

Two times open parenthesis length plus width open parenthesis.

or

Two times the sum of the length and width.

This is how read mathematical equations

$\frac{1}{2} \times \text{Base} \times \text{Height}$

One- half times base times height.

Area

Area is the amount of space inside a shape.

For example, if you want to find the area inside your bedroom, you're measuring how much space is inside the bedroom.

Perimeter

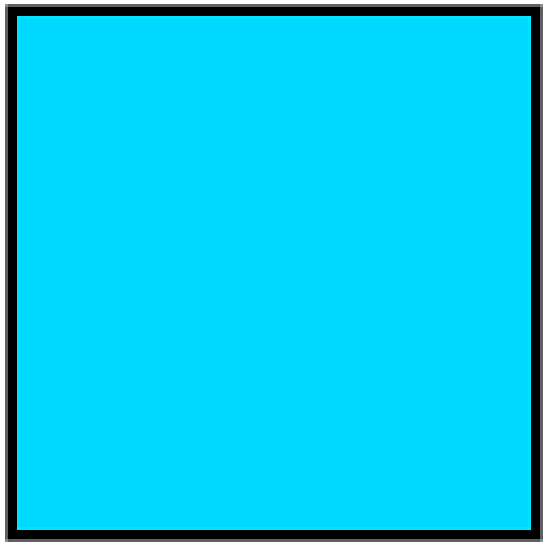
Perimeter is the distance around the outside of a shape.

For example, if you want to know how much fencing you need to enclose your garden, you're measuring the perimeter of the garden.

Square

Area=Side × Side

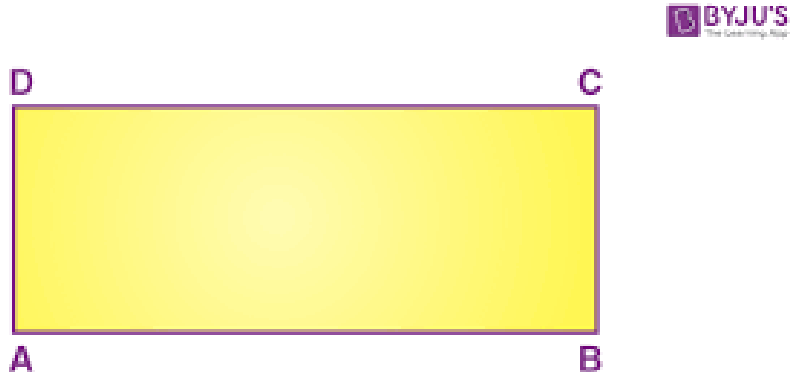
Perimeter = 4 × Side



Rectangle

Area=Length × Width

Perimeter= 2 × (Length + Width)



Circle

$$\text{Area} = \pi \times Radius^2$$

$$\text{Perimeter} = 2 \times \pi \times \text{Radius}$$

Triangle

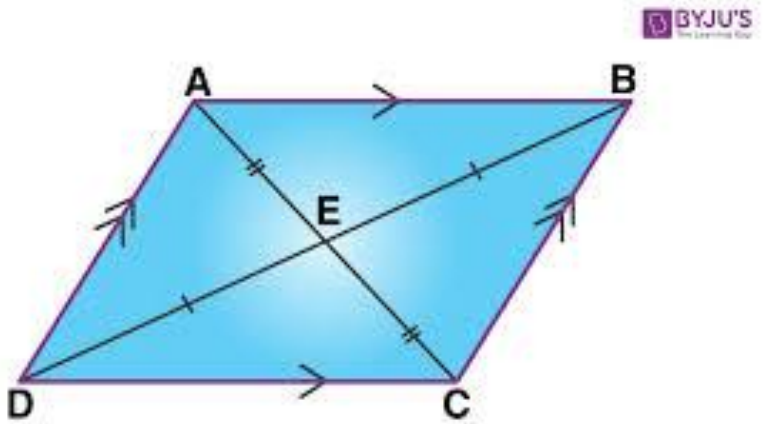
$$\text{Area} = \frac{1}{2} \text{ Base} \times \text{Height}$$

$$\text{Perimeter} = \text{Side1} + \text{Side2} + \text{Side3}$$

Parallelogram

Area=Base × Height

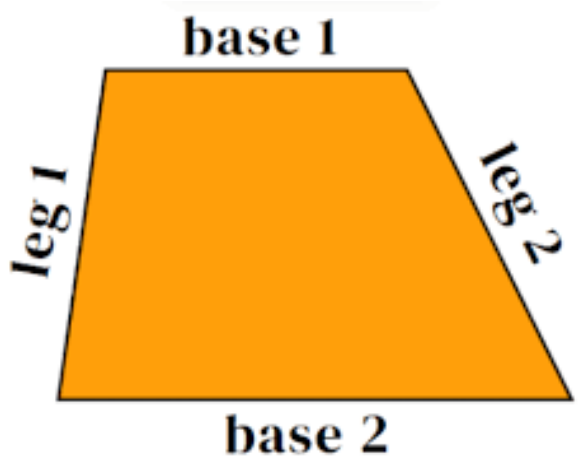
Perimeter= 2× (Base+ Side)



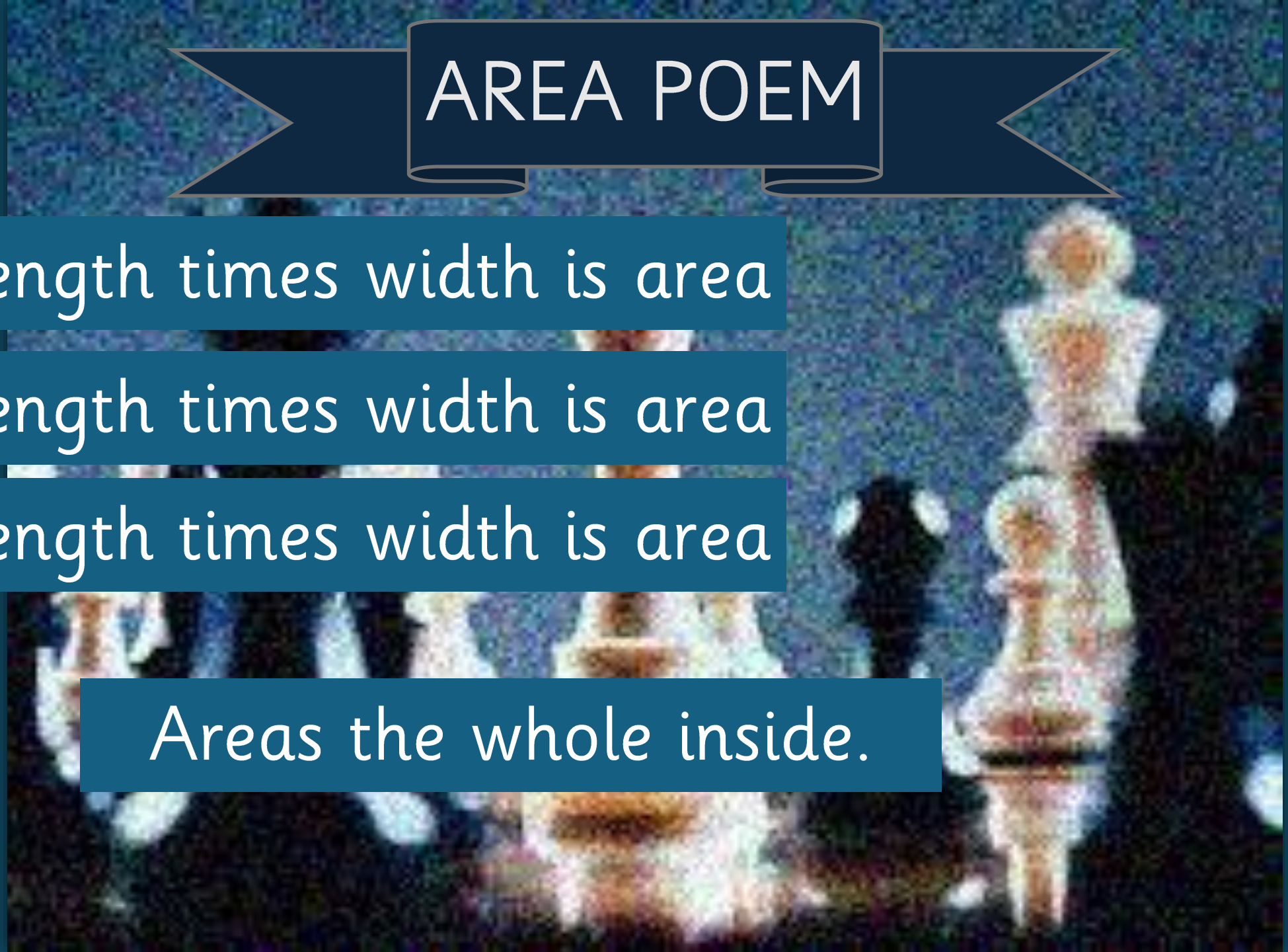
Trapezoid

Area= $\frac{1}{2}$ × (Sum of parallel sides) × Height

Perimeter= Sum of all four sides



AREA POEM



Length times width is area

Length times width is area

Length times width is area

Areas the whole inside.

AREA POEM

Use square units to measure it.

Use square units to measure it.

Use square units to measure it.

And that's the Area Song.

Perimeter Song

Perimeter is around.

Perimeter is around.

Oh, oh, don't you know,

Perimeter is around.

Perimeter Song

You add up all the sides.

You add up all the sides.

Oh, oh, don't you know,

You add up all the sides.