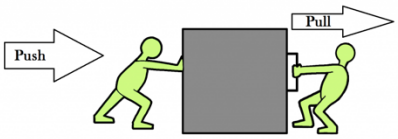
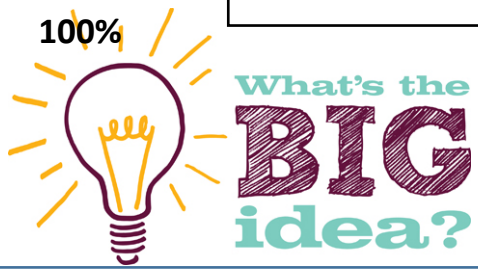
You need to know the content of this sheet. 100%

100% Sheet
Forces and Speed





Forces

Objects can affect other objects at a distance and changing the movement of an object requires a net force to be acting upon it.

You must know the unit of speed and how to do simple conversions of units

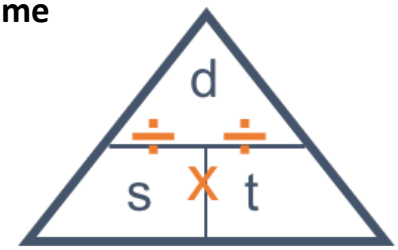
- **The SI unit of speed is m/s**
- To convert hours to minutes X 60
- To convert minutes to seconds X 60
- To convert hours to seconds X 60 X 60 OR X 3600
- To convert km to metres X1000

You must learn this and be able to rearrange it.

Speed = Distance / Time

Distance =

Speed =



Another equation you must learn

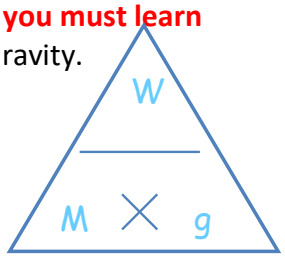
Weight = mass X Gravity.

W = m X g

UNITS!

Mass = kg

Weight = N

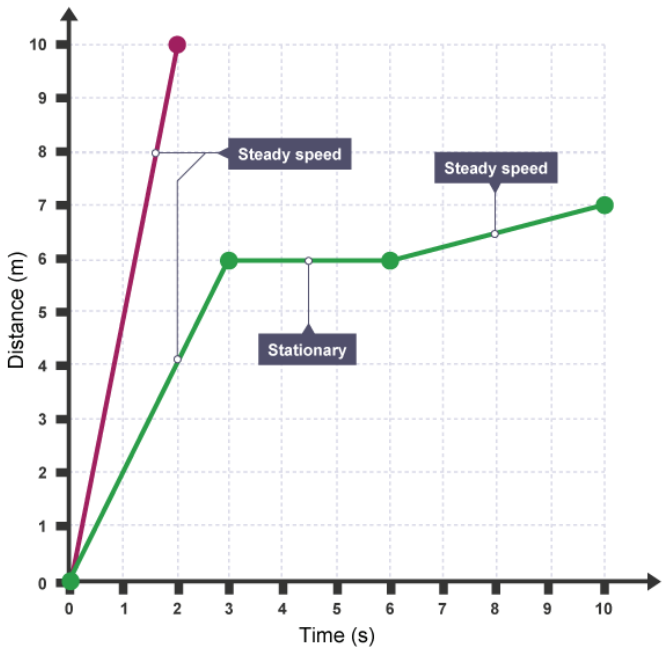


Balanced and **Unbalanced** forces

Forces ALWAYS act in pairs in opposite directions to each other

If the 2 forces are equal, they are **BALANCED**. There will either be **NO** motion or **CONSTANT** motion

If the 2 forces are not equal, they are **UNBALANCED**. There will be **ACCELERATION** or **DECELERATION**.



Distance-time graphs show how an object's motion changes over time.

A straight line shows a STEADY SPEED.

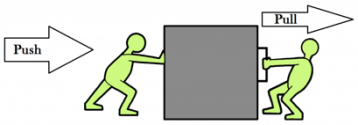
A horizontal line represents when the object is STATIONARY.

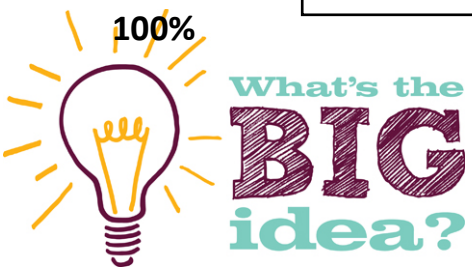
The steeper the line, the faster the speed.

Remember that you can work out speed from the gradient of the line, by distance divided by time

You need to know the content of this sheet. 100%

100% Sheet
Forces and Speed

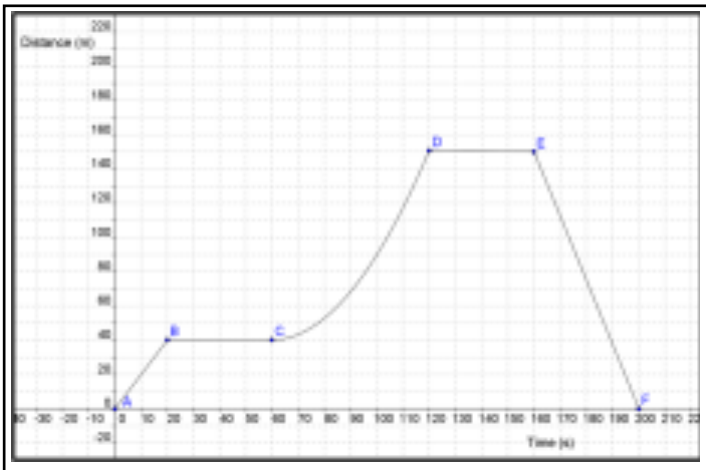




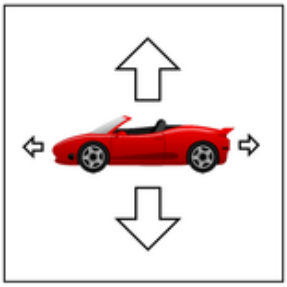
Forces

Objects can affect other objects at a distance and changing the movement of an object requires a net force to be acting upon it.

Car-A travels 2500m in 45s and car-B travels 32,000m in 20 minutes. Which car is traveling the fastest? Show your working and give the units of speed.

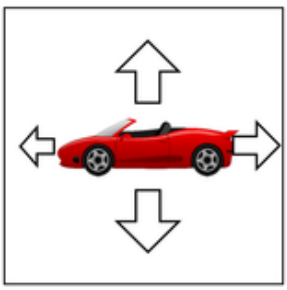


Describe the journey of this cyclist as fully as you can from this Distance-Time graph.



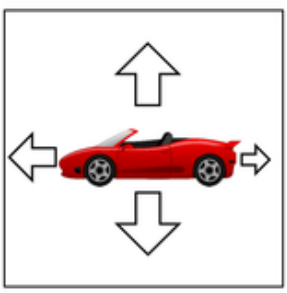
Forces
Weight: 15 000 N
Reaction Force: 15 000 N
Driving Force: 7000 N
Air Resistance & Friction: 7000 N

Resultant Force



Forces
Weight: 15 000 N
Reaction Force: 15 000 N
Driving Force: 7000 N
Air Resistance & Friction: 10000 N

Resultant Force



Forces
Weight: 15 000 N
Reaction Force: 15 000 N
Driving Force: 15 000 N
Air Resistance & Friction: 9000 N

Resultant Force