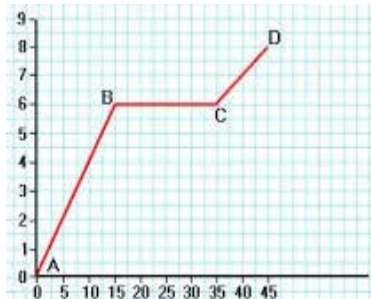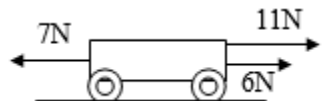|		
What are the standard units for distance, time and velocity? What is 92700 m in km? _____ km What is 2 and a half hours in minutes? _____mins What is 50kmh^{-1} in ms^{-1}? _____ ms^{-1}	**Explain the journey in the Distance time graph:** A-B: B-C: C-D: Draw acceleration on the graph above.	**Use v=d/t to calculate speed, time and distance** A car travels 12m in 3 seconds, what is the speed? A man runs for 30s at 2ms^{-1}, what is his distance? A duck swims for 100m at 10ms^{-1}, what is it's time?
Label the four forces acting on a moving runner What is the equation for Force? **May the m_____ times** **a_____ be with you.**	**Explain balanced and unbalanced forces.** When forces are **balanced** on an object it is either stationary of moving at a c_____ s_____. It's net force is _____ When forces are **unbalanced** an object is a_____ or d_____. Net Force: Direction:	**Use F=ma to calculate force, mass and acceleration** Plane has a thrust of 30,000 N, and a mass of 2500kg. What is its acceleration? A car is accelerating at 40ms^{-2}, with the thrust of 1600N. What is its mass? A 0.6kg ball is kicked at an acceleration of 9ms^{-1}. What is the force?
Use W=Fd to calculate Work done, force and distance. A man lifts his 35kg sheep up 0.7m out of a stream. Calculate the work done. Why is no work done when he distance is 0m?	**What is the rule of "Conservation of Energy"?** Why doesn't Ep always fully equal Ek? (hint: waste)	**Calculate Kinetic energy using E$_k$= ½ mv^2 and potential using E$_p$= mgh (g=10ms^{-2})** Calculate the kinetic energy a ball dropping at a speed of 14ms^{-1} that is 0.6kgs. Calculate the height the ball was dropped at (if there is no waste energy) (hint: Ep=Ek)

What are the standard units for distance, time and velocity?

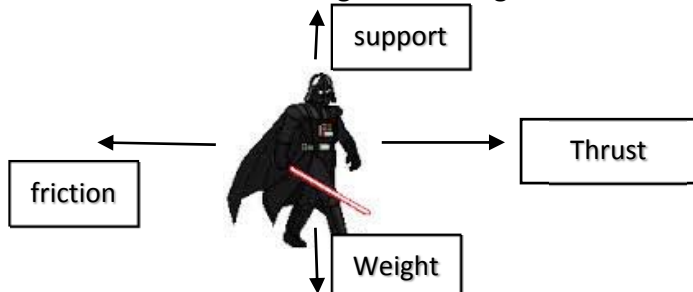What is 92700 m in km? | 92.7 | km

92700/1000m = 92.7

What is 2 and a half hours in minutes? | 150 | mins

2.5 x 60minutes = 150minutes

What is 50kmh^{-1} in ms^{-1}? | 13.9 | ms^{-1}

50/3.6= 13.9 ms^{-s}

Explain the journey in the Distance time graph:

A-B: Constant velocity

B-C: Stationary

C-D: Slower Constant velocity

Draw acceleration on the graph above.

Use v=d/t to calculate speed, time and distance

A car travels 12m in 3 seconds, what is the speed?

v= d/t = 12/3= 4ms^{-1}

A man runs for 30s at 2ms^{-1}, what is his distance?

d= v x t = 2 x 30 = 60m

A duck swims for 100m at 10ms^{-1}, what is it's time?

t= d/v = 100/10 = 10s

Label the four forces acting on a moving runner

support

Thrust

friction

Weight

What is the equation for Force?

May the | mass | **times**

acceleration **be with you.**

Explain balanced and unbalanced forces.

When forces are **balanced** on an object it is either stationary of moving at a | Constant speed

It's net force is | zero

When forces are **unbalanced** an object is

accelerating or decellerating

7N   11N   6N

Net Force: (11+6)- 7 = 10N

Direction: →

Use F=ma to calculate force, mass and acceleration

Plane has a thrust of 30,000 N, and a mass of 2500kg. What is its acceleration?

a=F/m = 30000/2500 = 12ms^{-2}

A car is accelerating at 40ms^{-2}, with the thrust of 1600N. What is its mass?

m= F/a = 1600/40 = 40kg

A 0.6kg ball is kicked at an acceleration of 9ms^{-1}. What is the force?

F= ma = 0.6 x 9 = 5.4N

Use W=Fd to calculate Work done, force and distance.
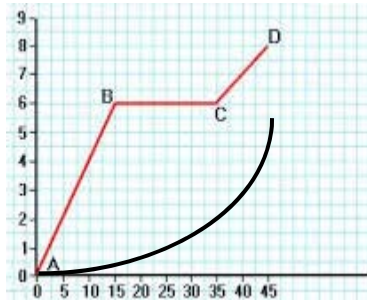
A man lifts his 35kg sheep up 0.7m out of a stream. Calculate the work done. (hint: acceleration down)

F= ma   W=Fd
a is gravity down(10ms^{-2})   W= 350N x 0.7m
F = 35kg x 10ms^{-2} **W= 245 Joules**
F= 350N

Why is no work done when he distance is 0m?

Work done is Force on a distance. If distance = 0 then W= Fx0. Anything times zero is zero, therefore W= 0.

What is the rule of "Conservation of Energy"?

Energy is neither created nor destroyed, only transformed from one form to another.

Why doesn't Ep always fully equal Ek? (hint: waste)

There is normally **waste energy**. E.g. if you are standing on top of a table (Ep), and then jump down (Ek), when you are falling there is friction so that transforms some of the kinetic to **heat energy**, and when you land you'll make a thud so that's **sound energy.**

Calculate Kinetic energy using E$_k$= ½ mv^2 and potential using E$_p$= mgh (g=10ms^{-2})

Calculate the kinetic energy that a ball dropping at a speed of 14ms^{-1} that is 0.6kgs has.

E$_k$= ½ mv^2 = ½ x 0.6 x 14^2 = 58.8 Joules

Calculate the height the ball was dropped at (if there is no waste energy) (hint: Ep=Ek)

E$_k$= 58.8 Joules. Ep=Ek therefore **Ep = 58.8J**
58.8 =mgh
58.8= 0.6 x 10x h
58.8= 6 x h
58.8/6 = h
h= 9.8 m