pendulum, mass
the relationship

(b) V & F, M, L

$V = KF^x M^y L^z$

$LT^{-1} = K (MLT^{-2})^x (M)^y L^z$

$LT^{-1} = K M^x L^x T^{-2x} M^y L^z$

$LT^{-1} = KM^{x+y} L^{x+z} T^{-2x}$

Equating the indices on both sides

L: $1 = x + z$ (i)

M: $0 = x + y$ (ii)

T: $-1 = -2x$ (iii)

$X = ½$

Put $z = ½$ into equation (i)

$1 = x + z$

$1 = x + ½$

$1 - ½ = x$

$x = ½$

Put $x = ½$ into equation (ii)

$0 = x + y$

$0 = ½ + y$

$Y = -½$

$V = KF^x M^y L^z$

$V = KF^{½} M^{-½} L^{½}$

$V = KF^{½} M^{-½} L^{½}$

$V = KF^{½} M^{-½} L^{½}$

$$V = K\sqrt{\frac{FL}{M}}$$

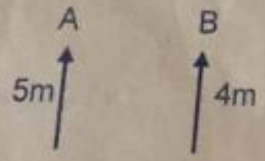
VECTOR ANALYSIS

Scalar quantities: are quantities that have magnitude but no direction e.g. distance, mass, speed, pressure, electric potential, heat capacity, altitude, work energy and power.

Vector quantities: are quantities that have magnitude as well as direction e.g. displacement, velocity, acceleration, weight, force, tension, impulse, momentum, magnetic induction, electric field intensity and torque.

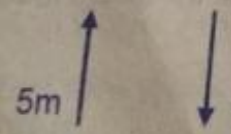
Vector Addition

(1) When two vector move in the same direction, to get the resultant, you add both vectors e.g.



$R = A + B = 5 + 4 = 9m.$

(2) When two vectors move in opposite direction, you subtract



$R = A - B$

$R = 5 - 4 = 1m.$

3) Geometrical methods: When two vectors make an angle with each other, calculate magnitude by using cosine rule and direction ∂ by using sine rule.