Higher Physics

Vectors
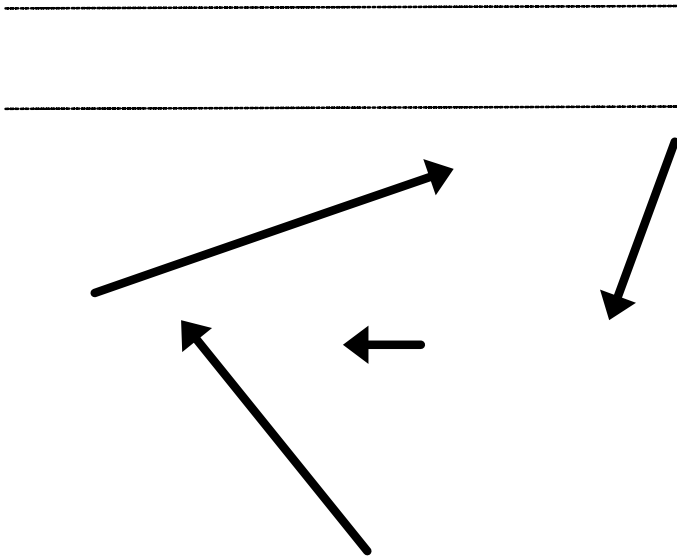
A vector is a mathematical or physical quantity that is represented by:
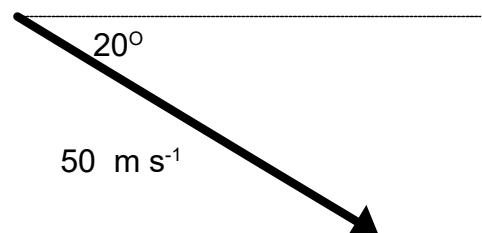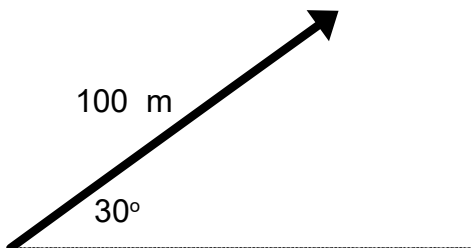

Examples of vector quantities in physics are:

A vector quantity can be broken down into horizontal and vertical parts called components.
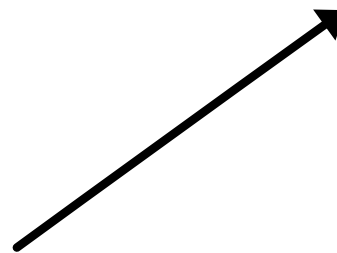
Examples

Find the horizontal and vertical components of the vectors below.

100 m

30°

20°

50 m s^{-1}

Adding Vectors.

Vector quantities can be added together. In order to do so they must be placed in a position where the arrow of one vector must be placed at the tail of the other.
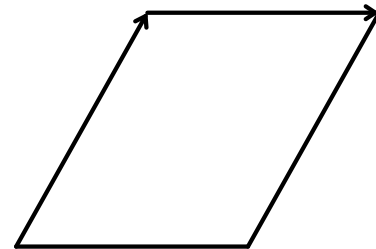
The resultant vector can then be drawn.
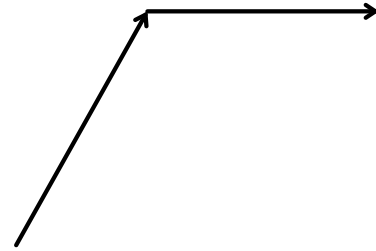
There is a special method to add vectors together which is called the parallelogram method.

This involves completing a parallelogram from the two vectors
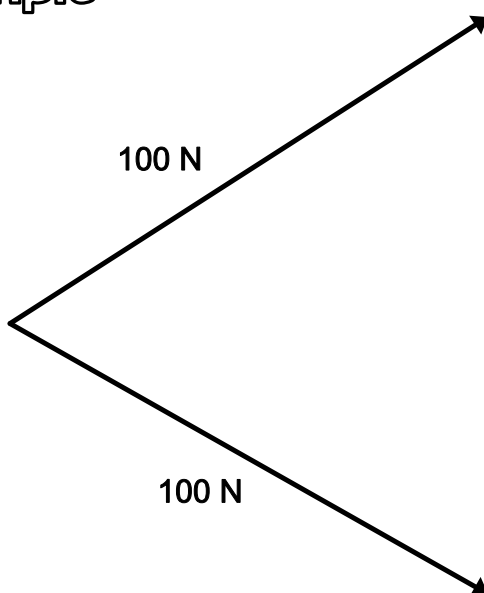
Then draw a diagonal line between the two original vectors to determine the resultant vector.

The magnitude can be determined by a ruler using the scale and the direction of the vector can be found using a protractor measuring its direction from a north line.
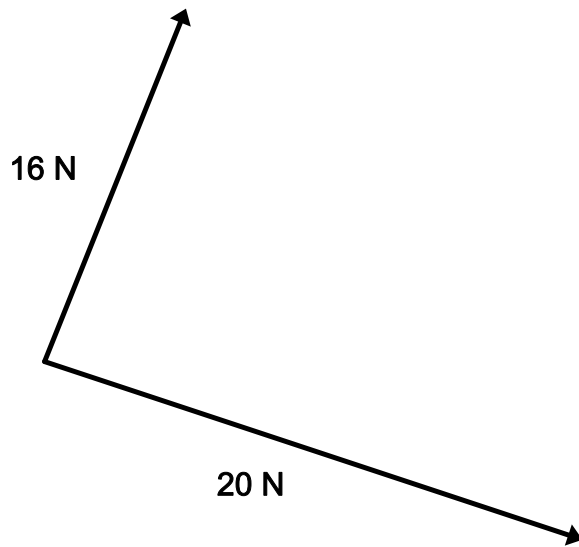
Example

100 N

100 N
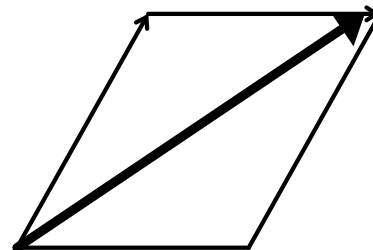
Practice Find the resultant vector.

16 N

20 N

Find the mass of the metal ball supported by two light ropes as shown

100 N   100 N