VECTORE
TESTS

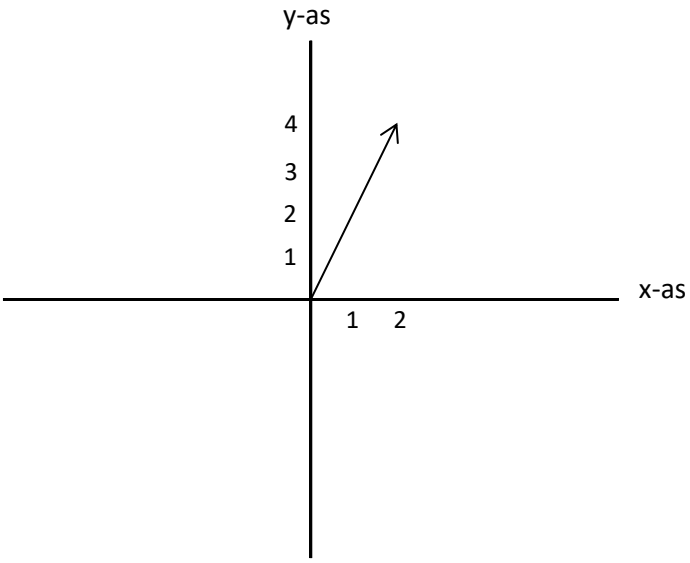
INFORMATION

- Phytagoras's theorem: $r^2 = x^2 + y^2$

ONLY SELECT A, B, C OR D FOR THE FOLLOWING QUESTIONS

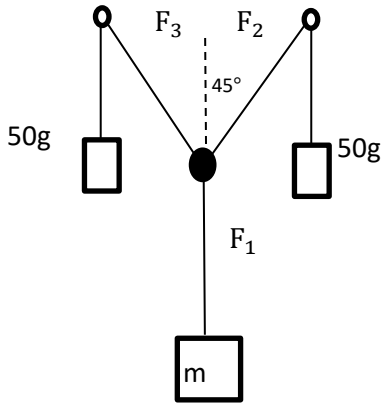
QUESTION 1:

1.1) Study the following vector. The size of the vector is:



A.) 4.47 power units.
B.) 4.3 power units.
C.) 2.4 power units.
D.) none of the above. (2)

1.2) The following sketch shows hanging weights. Each weight is 50g and the forces F1, F2 and F3 work at point O. The angle between the vertical and the horizontal is 45 °. The mass of the unknown weight (m) is:

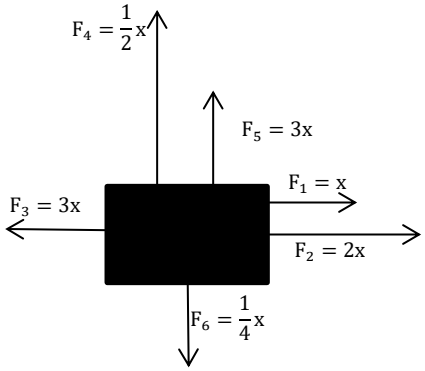


A.) $\frac{F_3}{g.\sin 45}$
B.) ${F_3}^2 + {F_2}^2$
C.) Same as the other masses
D.) A en B. (2)

1.3) A boat trip 5km east than 3km west then 4km east than 6km west. The boat is:

A.) At the starting point.
B.) 3km West.
C.) 2km East.
D.) 4km West. (2)

1.4) Consider the forces working in on a box. The forces' values are in terms of x. The resultant of all the forces is 50N. What is the value of x rounded to the nearest integer:



A.) 2.
B.) 3.
C.) 4.
D.) 5 (2)

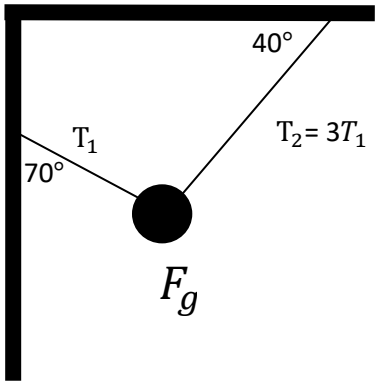
1.5) The definition of the equilibrant is:

A.) A single force that keeps the other forces in equilibrium.
B.) The product of all the forces.
C.) The force that is the largest.
D.) none of the above. (2)

QUESTION 2:

A rubber ball hangs on two strings as indicated by the angles between the vertical ones. Tension force $T_2 = 3T_1$.

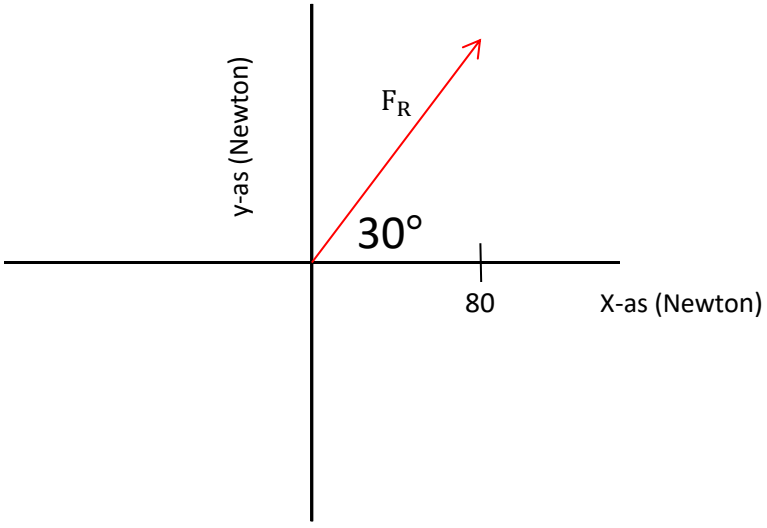
2.1) Determine an equation for T_1 in terms of the ball's weight. (5)
2.2) If the ball has a mass of 2kg, then determine T_2. (3)



QUESTION 3:

Consider the following diagram. The resultant force works at an angle of 30 ° with the horizontal.

3.1) What is the size of the F_x component? (1)
3.2) Then calculate the resulting vector. (3)



QUESTION 4:

A heavy object is lifted by a pulley at R. The object has a mass of 150 kg. The stress force at Q is 3 times the weight of the object. Determine the angle with tension R and the wall as well as the tension R. (6)

