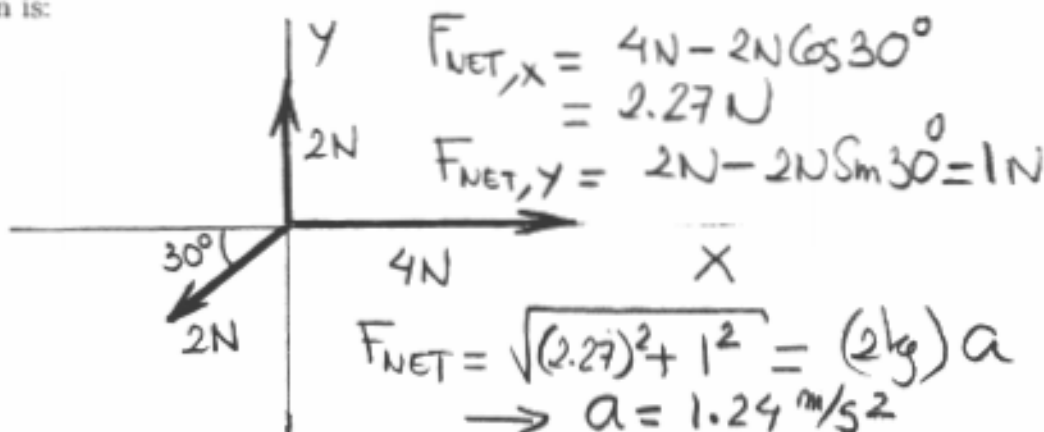


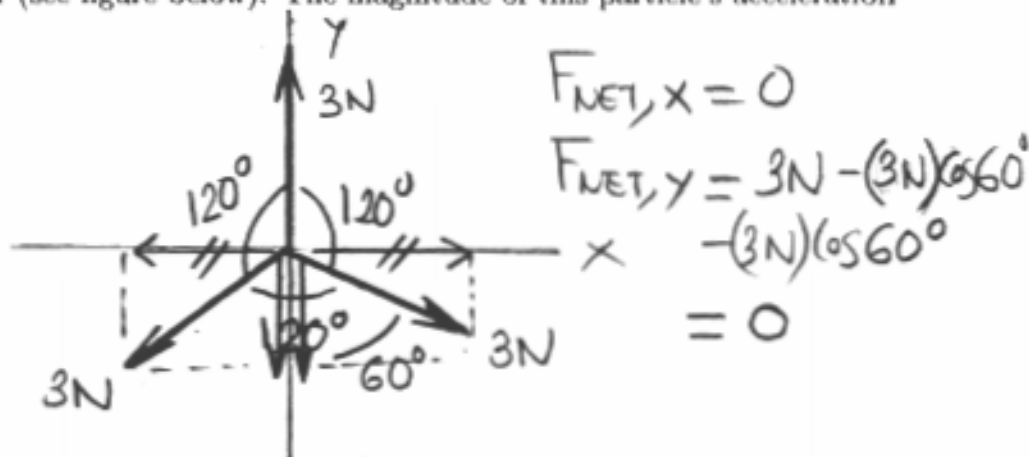
1) Three forces are exerted upon a 2 kg point particle, see figure below. The magnitude of this particle's acceleration is:

- a)  $2.2 \text{ m/s}^2$
- b)  $4.1 \text{ m/s}^2$
- c)  $1.2 \text{ m/s}^2$
- d)  $3.3 \text{ m/s}^2$
- e)  $0 \text{ m/s}^2$



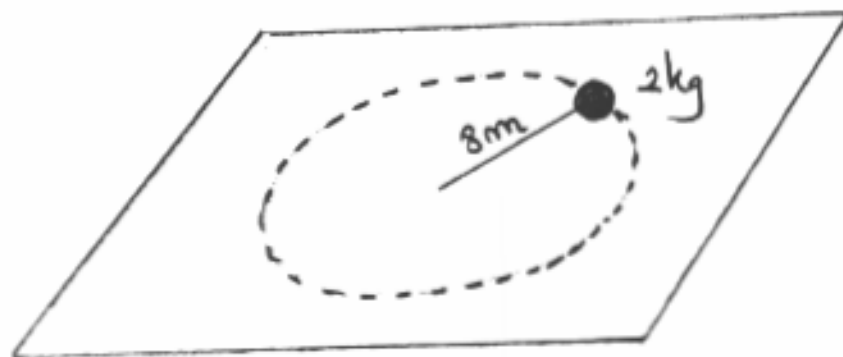
2) Three forces of equal magnitude are exerted upon a 2 kg point particle at an angle of  $120^\circ$  with respect to each other (see figure below). The magnitude of this particle's acceleration is:

- a)  $2.2 \text{ m/s}^2$
- b)  $4.1 \text{ m/s}^2$
- c)  $1.2 \text{ m/s}^2$
- d)  $3.3 \text{ m/s}^2$
- e)  $0 \text{ m/s}^2$



3) A 8 m cable can withstand a maximum tension of 100 N. We attach a 2 kg point mass to this cable and we turn it into a circular motion on a frictionless table. Find the maximum speed that this point mass can have.

- a) 10 m/s
- b) 12 m/s
- c) 15 m/s
- d) 20 m/s
- e) 25 m/s



$$T = F_{cp} = m \frac{v^2}{R}$$

$$100 \text{ N} = (2 \text{ kg}) \frac{v^2}{8 \text{ m}} \rightarrow v^2 = 400$$

$$v = 20 \text{ m/s}$$