

(4)

4.

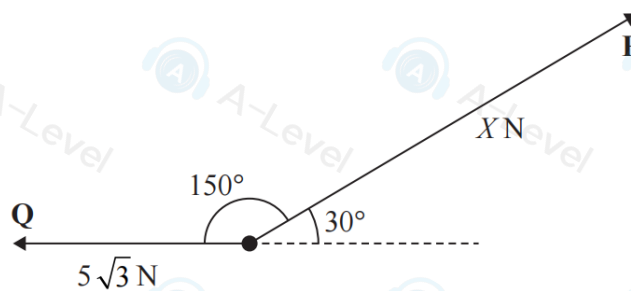


Figure 3

Figure 3 shows two horizontal forces **P** and **Q** acting on a particle.

The angle between the direction of **P** and the direction of **Q** is 150°

Force **P** has magnitude X newtons.

Force **Q** has magnitude $5\sqrt{3}$ N.

The resultant of **P** and **Q** has magnitude $\sqrt{129}$ N.

Find

- the value of X .
- the angle between **Q** and the resultant, giving your answer to the nearest degree.

(8)



- (a) Find the speed of the car 28 s after leaving A .

(3)

- (2)

- (4)

(d) Find the value of T .

(4)

A particle P is moving with constant velocity $(-6\mathbf{i} + 2\mathbf{j}) \text{ m s}^{-1}$. At time $t = 0$, P passes through the point with position vector $(21\mathbf{i} + 5\mathbf{j}) \text{ m}$, relative to a fixed origin O .

- (a) Find the direction of motion of P , giving your answer as a bearing to the nearest degree.

(3)

- (b) Write down the position vector of P at time t seconds.

(1)

- (c) Find the time at which P is north-west of O .

(3)

