For Examiner's Use

1 **(a)** Distinguish between vector and scalar quantities.

.....

.....[1]

(b) Define *acceleration*.

.....

.....[1]

(c) Fig. 1.1 shows the path of a car as it travels on a curved path.

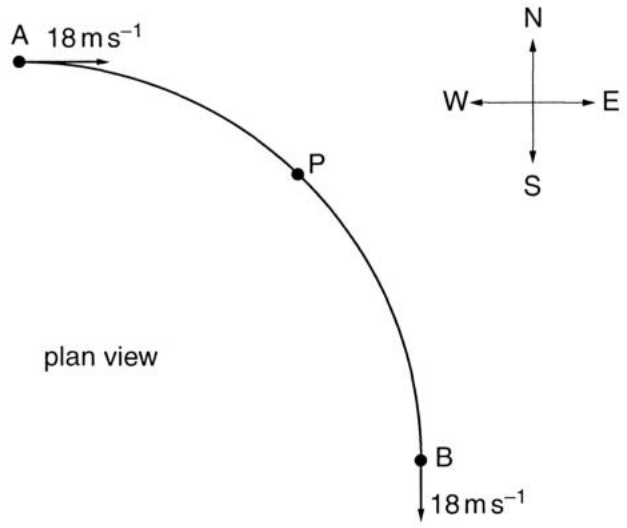

Fig. 1.1

The car travels at a constant speed of $18\,m\,s^{-1}$. At A the direction of the car is from west to east, and at B the direction is from north to south. The time taken for the car to travel from A to B is 4.4 s.

(i) Determine the magnitude of the change in velocity of the car.

change in velocity = ... m s^{-1} [2]

For Examiner's Use

(ii) Calculate the acceleration of the car between A and B.

acceleration = ...$m\,s^{-2}$ [1]

(iii) The path of the car is part of a circle. On Fig. 1.1, draw an arrow to show the direction of the resultant force that acts on the car as it passes through point P. [1]

(iv) Explain how a resultant force acts on the car to cause the acceleration, but there is no change to the kinetic energy of the car.

.....

.....

.....[2]