

1 (a) (i) State the difference between a scalar quantity and a vector quantity.

.....
..... [1]

(ii) In the list below, draw a line under each of the quantities that is a scalar quantity.

- acceleration** **mass** **momentum** **electric field strength**
energy **temperature**

[2]

(b) A tennis player throws a tennis ball into the air. The mass of the tennis ball is 5.8×10^{-2} kg. The tennis ball leaves the tennis player's hand and reaches a maximum height of 5.0 m above the point of release.

(i) Show that the initial velocity of the tennis ball is 9.9 m/s upwards.

[3]

(ii) Calculate the momentum of the tennis ball as it leaves the tennis player's hand.

momentum = [2]

[Total: 8]