Exercise 2C

1 a Slowing down (decelerating)

    b Constant velocity
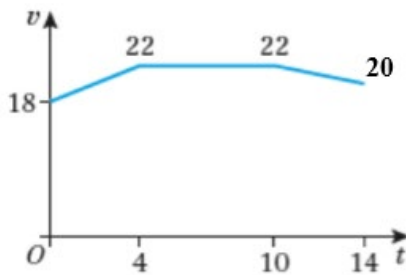
    c Accelerating

    d 54 m s^{-1}

2 a
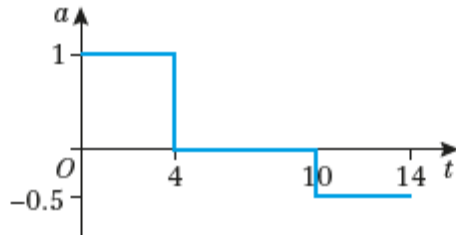
    b

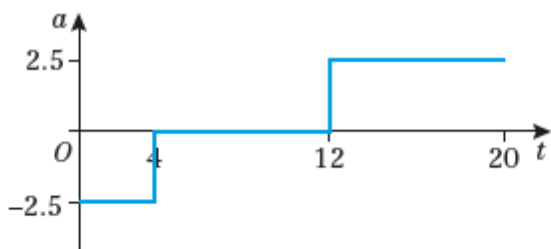   **c** Distance travelled = area under the curve
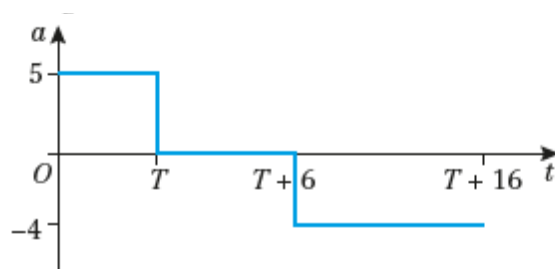
$$= \frac{1}{2} \times 4 \times (18 + 22) + 6 \times 22 + \frac{1}{2} \times 4 \times (22 + 20)$$
$$= 296 \text{ m}$$

3

Challenge

a

b   After T s the speed of the particle is $8 + 5T$ m s^{-1}
       After $(T + 16)$ s the speed of the particle is $(8 + 5T - 10 \times 4)$ m s^{-1}
       The question states that after $(T + 16)$ s the speed of the particle is -12 m s^{-1}
       Therefore,
       $8 + 5T - 10 \times 4 = -12$
       $5T - 32 = -12$
       $5T = 20$
       $T = 4$ s