$\boxed{\text{7.1 Integral as Net Change}}$
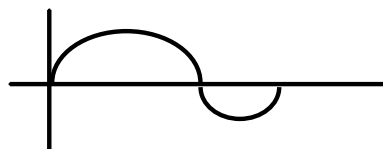
Linear Motion Revisited

Position

Velocity

Acceleration

<u>Displacement</u> = Final position - initial position

<u>Total Distance Traveled</u> =
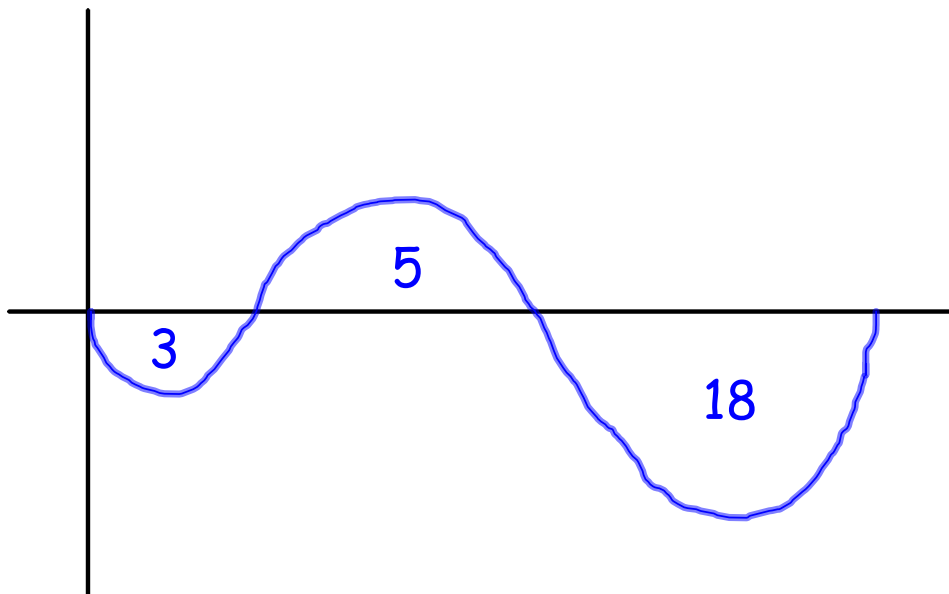
Ex 1) $v(t) = 6t^2 - 18t + 12, \quad 0 \le t \le 2$

a.) Determine when the particle is moving to the right, left, stopped.

b.) Find the particles displacement.

c.) If s(0)=3, find its final position.

d.) Find the total distance traveled.

e.) Find the acceleration at t=0.

Ex 2) $V = 6\sin(3t), \quad 0 \le t \le (\pi/2)$

a.) Determine when the particle is moving to the right, left, stopped.

b.) Find the particles displacement.

c.) If s(0)=3, find its final position.

d.) Find the total distance traveled.

e.) Find the acceleration at t=0.

Ex 3) $v = \dfrac{t}{1 + t^2}$ $0 \le t \le 3$

a.) Determine when the particle is moving to the right, left, stopped.

b.) Find the particles displacement.

c.) If s(0)=3, find its final position.

d.) Find the total distance traveled.

e.) Find the acceleration at t=0.

Homework

7.1 #1, 3, 5, 7, 9