

P2.1-9) A particle moving along a straight line is initially traveling at 24 m/s directed to the right when it is subjected to a constant acceleration of 8 m/s^2 directed to the left. Determine the particle's total distance traveled for the first 5 seconds after the acceleration is applied.

Given:

Find:

Solution:

Does the particle turn within 0 and 5 seconds?

Yes

No

$$s_{t=5\text{ s}} = \underline{\hspace{2cm}}$$

$$s_{turn} = \underline{\hspace{2cm}}$$

Calculate the Total Distance traveled between 0 and 5 seconds

If the particle turns, at what time does it turn?

Draw a line graph for the position of the particle. Show your work.

$$t_{turn} = \underline{\hspace{2cm}}$$

Position

Calculate the position at $t_0 = 0$, $t_5 = 5 \text{ s}$, and at t_{turn} . Write down the position equation in variable form before plugging in numbers.

$$s_{t=0\text{ s}} = \underline{\hspace{2cm}}$$

$$s_{total} = 52 \text{ m}$$