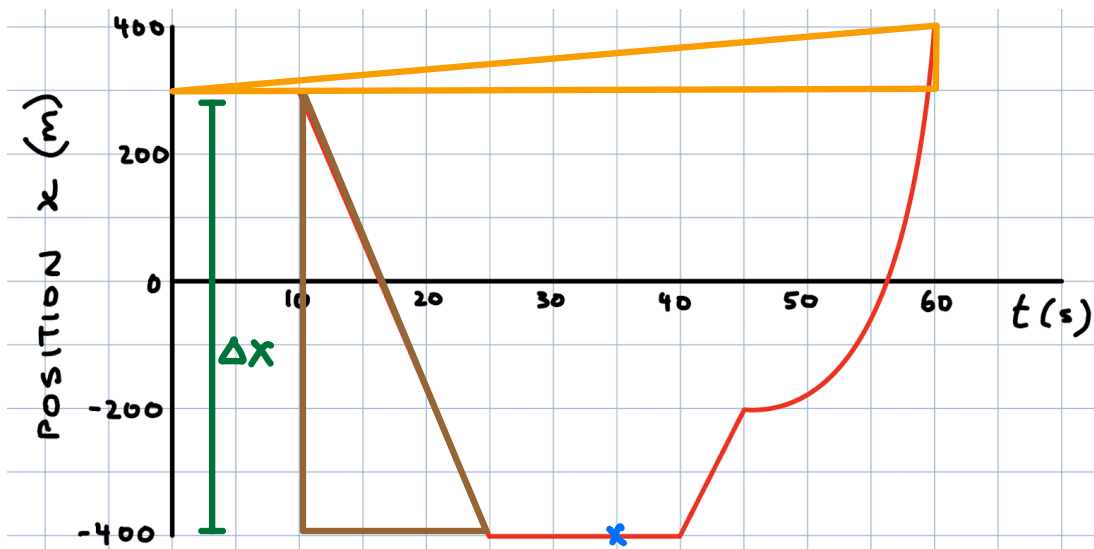




- a) What is the position at 35 s?
- b) What is the displacement from 0 to 25 s?
- c) When is the object is at rest?
- d) When is the object is moving in the positive direction?
- e) When is the object is accelerating? Is that acceleration positive or negative?
- f) What is the velocity at 20 s?
- g) What is the average velocity from 0 to 60 s?



a) What is the position at 35 s?

$$\boxed{-400 \text{ m}}$$

b) What is the displacement from 0 to 25 s?

$$d = \Delta x = x_f - x_i = (-400) - (300) = \boxed{-700 \text{ m}}$$

c) When is the object is at rest?

$$\boxed{0 - 10 \text{ s}, 25 - 40 \text{ s}}$$

↳  $v = \text{slope} = 0$

d) When is the object is moving in the positive direction?

$$\boxed{40 - 60 \text{ s}}$$

↳ slope is positive  
EXCEPT POSSIBLY AT 45 s WHERE  $v \approx 0$

e) When is the object is accelerating? Is that acceleration positive or negative?

$$\boxed{45 - 60 \text{ s}, \text{ POSITIVE}}$$

↳ CURVE  
SLOPE IS INCREASING  
(MORE POSITIVE)

f) What is the velocity at 20 s?

$$v = \text{slope} = \frac{\Delta x}{\Delta t} = \frac{x_2 - x_1}{t_2 - t_1} = \frac{-400 - 300}{25 - 10} = \boxed{-46.7 \frac{\text{m}}{\text{s}}}$$

g) What is the average velocity from 0 to 60 s?

$$v = \text{slope} = \frac{\Delta x}{\Delta t} = \frac{x_2 - x_1}{t_2 - t_1} = \frac{400 - 300}{60 - 0} = \boxed{1.67 \frac{\text{m}}{\text{s}}}$$