

(c) Interpret the results from parts (a) and (b).

part (a): the average rate of change of total cost when production changes from 100 to 300 is 43

part (b): the average rate of change from 300 to 600 is 95.5 \$.

**40** If an object is thrown upward at 64 feet per second from a height of 20 feet, its height is given by:

$$S(x) = 20 + 64x - 16x^2$$

what is the average velocity.

(a) first 2 seconds

from  $t=0$  to  $t=2$

$$\text{average rate of change} = \frac{S(2) - S(0)}{2 - 0} = \frac{84 - 20}{2}$$

$$\frac{S(2) - 20}{2} = \frac{64}{2} = \boxed{32}$$

(b) next 2 seconds?

from  $t=2$  to  $t=4$

$$\text{average rate of change} = \frac{S(4) - S(2)}{4 - 2}$$

$$= \frac{20 - 84}{2} = \frac{-64}{2} = \boxed{-32}$$