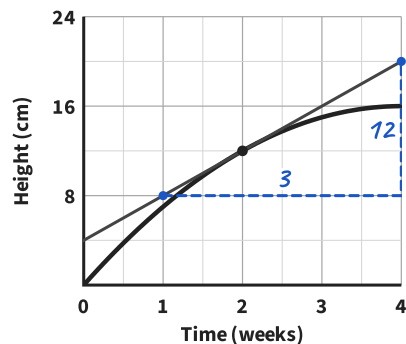


Gradient of a Curve *stretch*

ANSWERS

1

Find how fast the seedling is growing at 2 weeks.

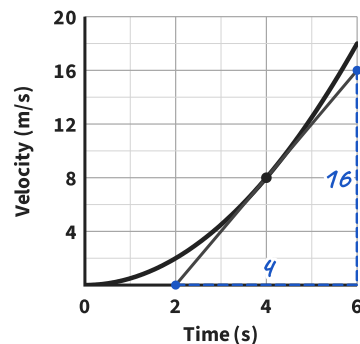


$$12 \div 3 = 4$$

Rate 4 cm per week

2

The tangent at 4 seconds is drawn. Find the bike's acceleration then.

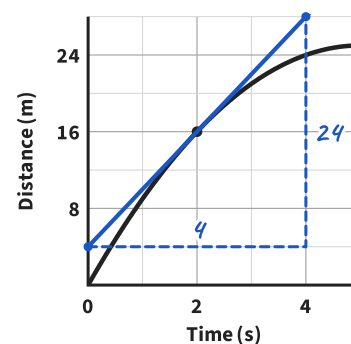


$$16 \div 4 = 4$$

Answer 4 m/s²

3

Draw a tangent at 2 seconds to estimate the speed then.

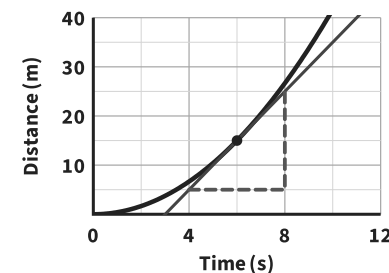


$$24 \div 4 \text{ (accept 5 to 7)}$$

Speed about 6 m/s

4

Ana counts 4 squares up and 2 across, so says the speed at 6 s is 2 m/s. Explain her mistake and find the speed.

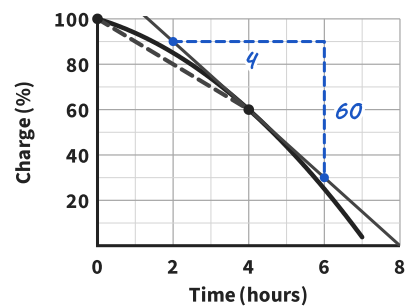


$$\text{a square is 5 m up, 2 s across: } 20 \div 4$$

Answer 5 m/s

5

Find the average rate the charge falls from 0 to 4 h (dashed) and the rate at 4 h.

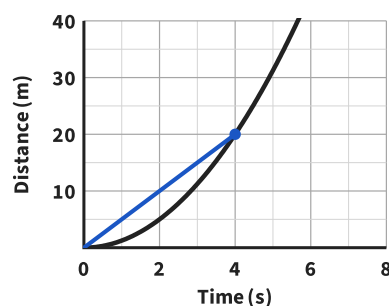


$$40 \div 4 = 10, \quad 60 \div 4 = 15$$

Answer 10 and 15 % per hour

6

A car starts from rest. Its average speed over the first T seconds is 5 m/s. Find T .

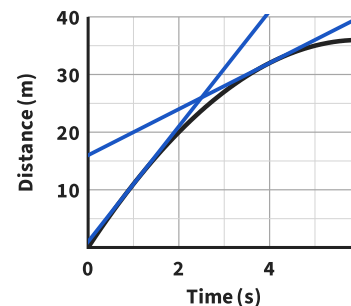


$$20 \div 4 = 5: \text{ the chord to } (4, 20)$$

Answer $T = 4$

7

A sledge's distance is shown. Is it speeding up or slowing down? Explain how you know.

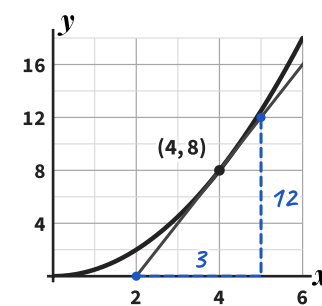


$$\text{the tangents get less steep}$$

Reason slowing down

8

The tangent to $y = \frac{1}{2}x^2$ at (4, 8) is drawn. Find the equation of the tangent.



$$\text{gradient } 12 \div 3 = 4, \quad 8 = 16 + c$$

Answer $y = 4x - 8$