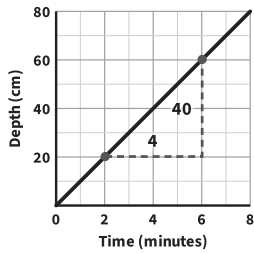


Rates from Graphs

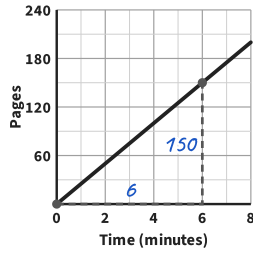
1 Rate = change up ÷ change across

Water fills a pool. Find the rate the depth rises.



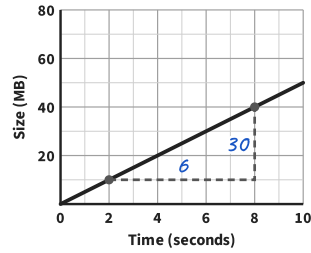
$$40 \div 4 = 10 \text{ cm per minute}$$

2 A printer prints pages. Find the rate.



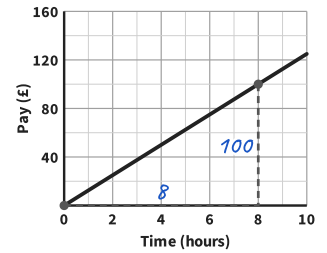
$$150 \div 6 = 25 \text{ pages per minute}$$

3 A file downloads. Find the rate.



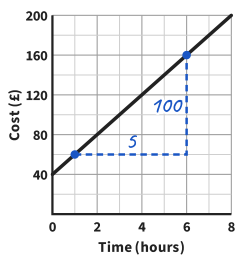
$$30 \div 6 = 5 \text{ MB per second}$$

4 Sam is paid by the hour. Find the rate of pay.



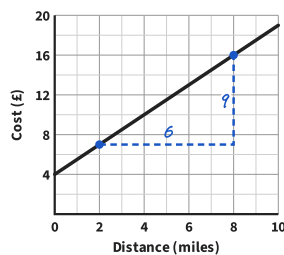
$$100 \div 8 = \text{£ } 12.50 \text{ per hour}$$

5 A plumber charges a call out fee, then by the hour. Find the hourly rate.



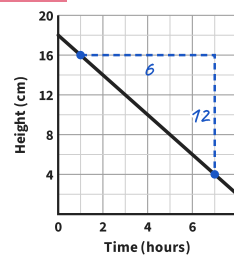
$$100 \div 5 = \text{£ } 20 \text{ per hour}$$

6 A taxi charges a fixed fee, then by the mile. Find the rate per mile.



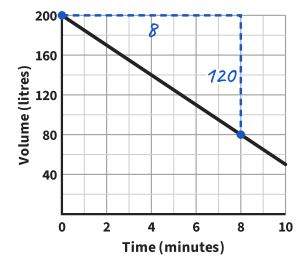
$$9 \div 6 = \text{£ } 1.50 \text{ per mile}$$

7 Notice the change! A candle burns down. Find the rate it gets shorter.



$$12 \div 6 = 2 \text{ cm per hour}$$

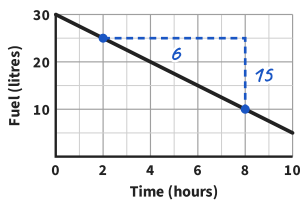
8 A tank drains. Find the rate the water leaves.



$$120 \div 8 = 15 \text{ litres per minute}$$

Rates from Graphs further practice

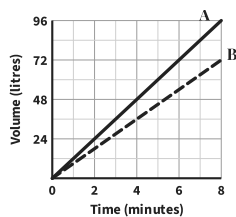
9 A generator uses fuel. Find the rate the fuel is used.



$$15 \div 6$$

Answer 2.5 litres per hour

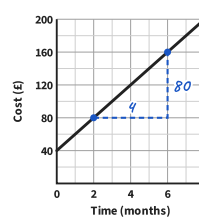
10 Tank A and tank B are filled with water. Which tank fills faster, and by how many litres per minute?



$$A: 96 \div 8 = 12, B: 72 \div 8 = 9$$

Answer A, by 3 litres per minute

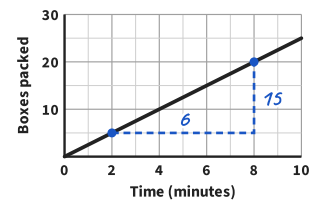
11 A gym charges a joining fee, then the same amount each month. Find the joining fee and the monthly fee.



$$\text{the line starts at } 40, 80 \div 4 = 20$$

Answer £40, then £20 a month

12 A machine packs boxes. Find the rate in boxes per hour.



$$15 \div 6 = 2.5 \text{ per minute}, 2.5 \times 60$$

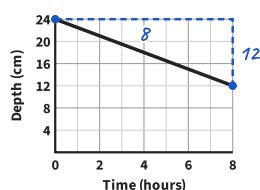
Answer 150 boxes per hour

13 At 10:00 a water butt holds 45 litres. It fills at a steady rate in the rain, and at 13:00 it holds 81 litres. Find the rate it fills.

$$36 \text{ litres in } 3 \text{ hours}, 36 \div 3$$

Answer 12 litres per hour

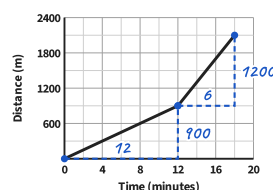
14 A paddling pool has a slow leak. If it keeps leaking at the same rate, how many hours after the start will the pool be empty?



$$1.5 \text{ cm per hour}, 24 \div 1.5$$

Answer 16 hours

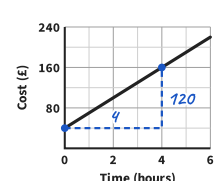
15 Kai walks, then runs. The graph shows his distance from home. In which part is he faster? Find his speed in that part.



$$900 \div 12 = 75, 1200 \div 6 = 200$$

Answer Running, 200 m per minute

16 Boat hire costs a fixed fee, then an amount per hour. Ella says the rate is $160 \div 4 = \text{£}40$ per hour. Is she right? Explain.



$$(160 - 40) \div 4 = 30$$

Answer No, it is £30 per hour