

Compound Interest/Depreciation, Growth & Decay Question Paper

Level	OCR
Subject	Maths
Exam Board	GCSE (9-1)
Topic	Ratio, Proportion and Rates of Change
Sub Topic	Compound Interest/Depreciation, Growth & Decay
Grade Level	Grade 4
Booklet	Question Paper

Time Allowed: 29 minutes

Score: /24

Percentage: /100

- 1 A baby weighs 7 pounds at birth.
It is expected that her weight will increase by 9% each month in the first year.

Calculate the expected weight of the baby after 1 year (12 months).

..... pounds **[3]**

- 2 On the 1st of January, a car was valued at £15 000.
Each year, the value of the car decreases by 18% of its value at the start of that year.

By how much will the value of the car have decreased after 3 years?

£ [4]

- 3 Noah invested £3000 in a bank at a fixed annual compound interest rate.
In 2013, the bank used this calculation to work out how much the investment was worth.

$$3000 \times 1.025^{16}$$

- (a) (i) What rate of interest was given?

(a)(i) _____ % [1]

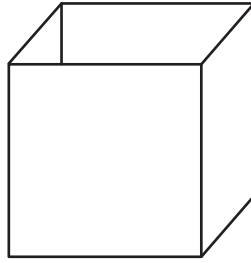
- (ii) In which year did Noah originally invest the money?

(ii) _____ [2]

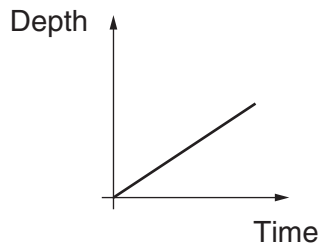
- (b) Calculate the value of the investment in 2013.

(b) £ _____ [1]

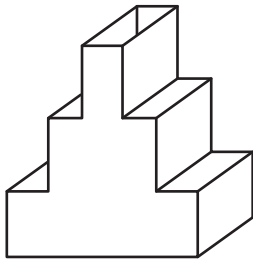
- 4 This empty container is filled with water at a constant rate.



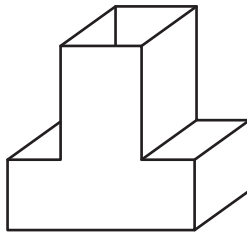
The graph of depth of water against time looks like this.



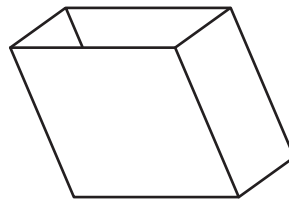
Four more empty containers are shown below.
Each of these containers is filled with water at a constant rate.



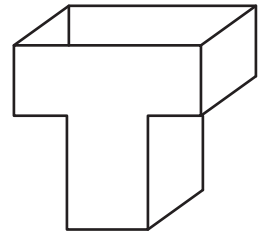
A



B



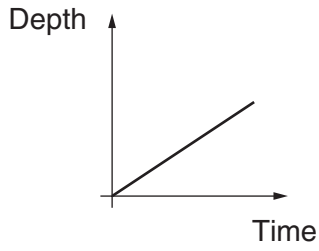
C



D

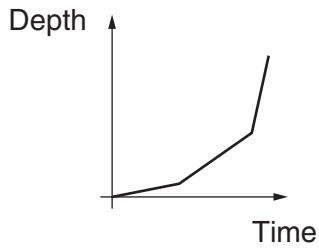
Choose which of these containers matches each of the graphs.

(a)



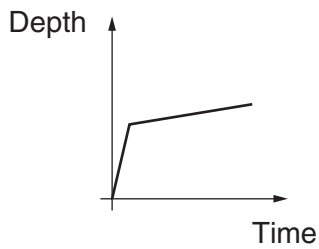
(a) Container..... [1]

(b)



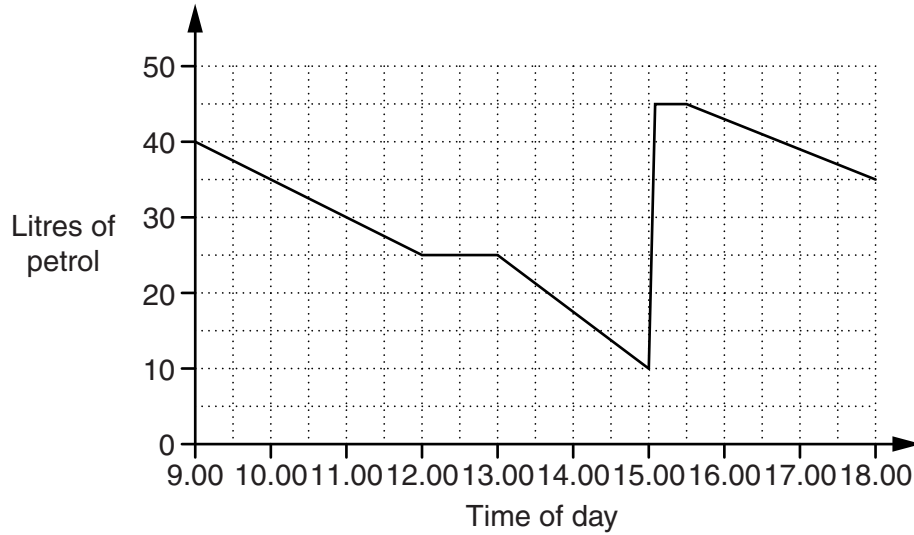
(b) Container..... [1]

(c)



(c) Container..... [1]

- 5 Nisha goes on holiday in her car.
The graph shows how many litres of petrol are in the tank of her car during the journey.



- (a) Work out the rate at which the car was using petrol during the first 3 hours of the journey.
State the units of your answer.

(a) _____ [3]

- (b) Between which times was the car using petrol at the greatest rate?

(b) _____ and _____ [1]

- (c) What could have happened

- (i) between 12.00 and 13.00,

_____ [1]

- (ii) at 15.00?

_____ [1]

6 Frances invests £30 000 at 6% per year **compound** interest.

How much will the investment be worth after 3 years?

£ _____ [4]