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]**

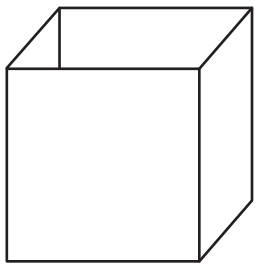
(ii) In which year did Noah originally invest the money?

(ii) _____ **[2]**

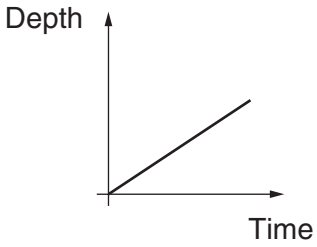
(b) Calculate the value of the investment in 2013.

(b) £ _____ **[1]**

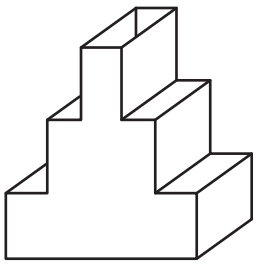
4 This empty container is filled with water at a constant rate.



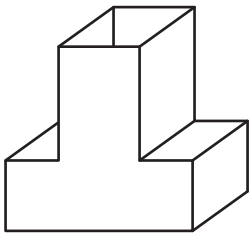
The graph of depth of water against time looks like this.



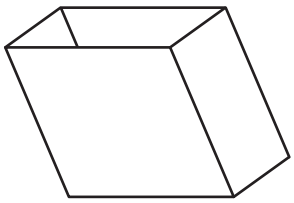
Four more empty containers are shown below.
Each of these containers is filled with water at a constant rate.



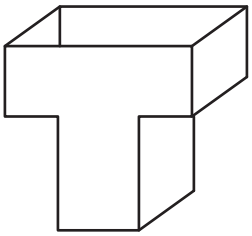
A



B



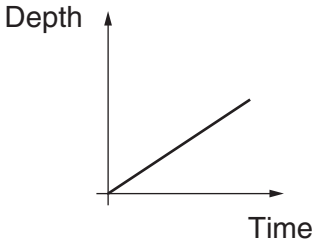
C



D

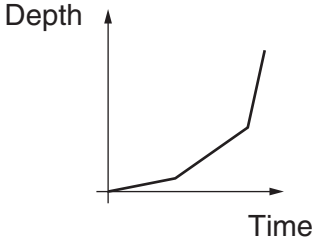
Choose which of these containers matches each of the graphs.

(a)



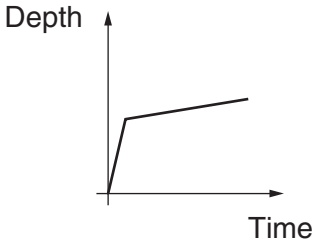
(a) Container..... **[1]**

(b)



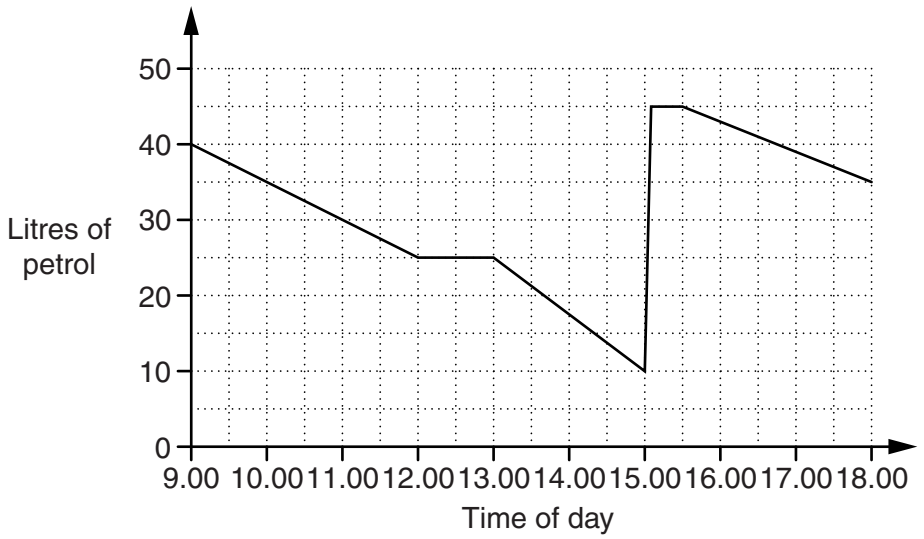
(b) Container..... **[1]**

(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]**