



## Repeated Percentage Change Exam Practice

- Q1. Ben invests some money for 3 years in a savings account. He gets 4% compound interest each year. If Ben has £11,171.00 at the end of the 3 years, work how much he invested.  
(3 marks)
- Q2. Ron gets a pay-rise of 2% last month, and a further pay-rise of 3% this month. He says, "In total, I've had a pay increase of 5%". Do you agree? You must justify your answer.  
(2 marks)
- Q3. Sam invests £5000 for 4 years in a savings account. She gets 2% per compound interest in the first year, then  $p\%$  for the next 3 years. If Sam has £5508.23 at the end of 4 years, work out the value of  $p$ .  
(4 marks)
- Q4. The share price in a company rose by 4% last year, and decreased by 7% this year. Work out the percentage change over this period.  
(2 marks)
- Q5. Jerry started a new fitness regime in January, and on it he is losing 1.5% of his body weight each month. He plans to have lost 11% of his weight by the end of June. He works out that he won't, and will increase his training in June. What % bodyweight will he have to lose in June to reach this goal?  
Give your answer correct to 1 decimal place.  
(4 marks)
- Q6. A tree is 2.8 metres tall. It grows at the rate of 1.9% each year for the next 10 years, and then at half that rate for the next 10 years. Work out how tall it will be after this period, giving your answer to the nearest cm.  
(4 marks)
- Q7. A car is decreasing in value by  $x\%$  each year. If the car will half in value in 6 years, work out the value of  $x$ . Give your answer to 1 decimal place.  
(3 marks)
- Q8. The volume of water in a garden pond fell by 3.4% last week, and then increased by 0.75% this week. Work out the overall percentage change in the volume of water over this period.  
(3 marks)



Q9. The number of insects in a colony is increasing by  $x\%$  each day. If the population is expected to increase by a factor of three in 12 days, work out the value of  $x$ . Give your answer to 1 decimal place.

(2 marks)

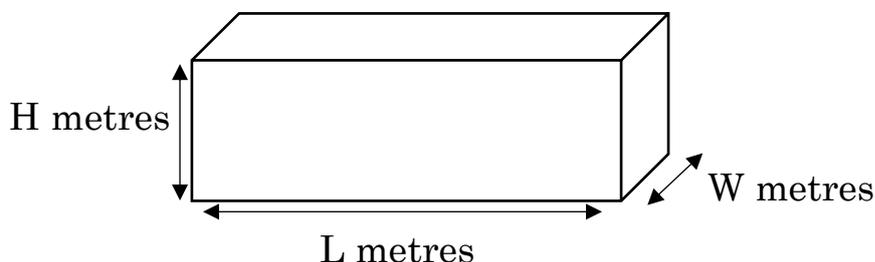
Q10. An oil-slick, in the shape of a circle, is increasing in area by  $3\%$  each day. Work out the  $\%$  increase in the diameter of the oil-slick after 5 days.

(4 marks)

Q11. Walter wishes to model the population of bats which is decreasing by the same amount each year. To find how many bats there will be 4 years from now, He multiplies the current number of bats by 1.00375. Work out, correct to 1 decimal place, the percentage decrease each year in the population.

(2 marks)

Q12. A wall is being constructed in the shape of a cuboid. For every  $1\%$  increase in volume, the overall cost will increase by  $\pounds 100$ .



It is decided that  $L$  is to be decreased by  $0.8\%$  and  $W$  is to be increased by  $2.6\%$ . Work out the overall increase in cost of the wall.

(4 marks)

Q13. An engineer is experimenting with cylinders of different size for his project. This week it is decided that the area of the cross-section should be increased by  $5\%$ .

Next week, it is decided that the volume should be further increased by  $2\%$ . Work out the overall percentage increase in the radius of the cylinder over this period, to 1 decimal place.

(5 marks)