HIGHER

6.4 Repeated Percentage Change: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write down the single decimal multiplier for a percentage increase of 3.5%.

(Total for Question 1 is 1 mark)

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2 A mobile phone contract costs £45 per month. The price increases by 6% each year.

(a) Write down the multiplier for an increase of 6%. **(1)**

.....

(b) Write down the multiplier for a decrease of 32%. **(1)**

.....

(c) Work out the cost per month of the phone contract after 2 years. Give your answer to the nearest penny. **(2)**

.....

(Total for Question 2 is 4 marks)

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3 A car is worth £12,000. It depreciates by 10% each year. Find its value after 2 years.

(Total for Question 3 is 2 marks)

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4 A house was bought for £210000. In year 1 its value increased by 4%. In year 2, due to a market correction, its value decreased by 1.5%. In year 3 its value increased by 3%.

(a) Calculate the value of the house at the end of year 3. Give your answer to the nearest pound. **(4)**

.....

(b) Calculate the overall percentage change in the value of the house over the 3 years. Give your answer correct to 1 decimal place. **(2)**

.....

(Total for Question 4 is 6 marks)

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5 Chidi invests £5000 for 4 years. He compares two accounts.
Bank A: 2% per annum compound interest.
Bank B: simple interest at 2.2% per annum, calculated on the original £5000 only, each year.

Determine which bank gives the higher return after 4 years, and by how much.

(Total for Question 5 is 5 marks)

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6 The population of a village is 2400. The population increases by 3% each year.

Work out the number of complete years it takes for the population to first exceed 3000. Show your working.

(Total for Question 6 is 3 marks)

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7 A quantity of 60 kg decreases by 8% and then increases by 8%. Calculate the final quantity, correct to 1 decimal place.

(Total for Question 7 is 2 marks)

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Mark scheme · 6.4 Repeated Percentage Change: 30-minute Pack

Question 1

1.035 oe	**B1**

Answer: 1.035

Question 2

(a) 1.06 cao	**B1**

(a) Answer: 1.06

(b) 0.68 cao	**B1**

(b) Answer: 0.68

(c) 45 x 1.06^2 (oe), ft their (a)	**M1**
(c) 50.56 (awrt) cao	**A1**

(c) Answer: £50.56

Question 3

12000 * 0.9^2 oe	**M1**
9720 cao	**A1**

Answer: £9,720

Question 4

(a) 210000 x 1.04 (= 218400)	**M1**
(a) 218400 x 0.985 (= 215124)	**M1**
(a) 215124 x 1.03 (or full chain 210000 x 1.04 x 0.985 x 1.03)	**M1**
(a) £221578 (awrt, nearest pound) cao	**A1**

(a) Answer: £221578

(b) (221577.72 - 210000) / 210000 x 100 (oe, ft their (a))	**M1**
(b) 5.5% (awrt) cao	**A1**

(b) Answer: 5.5% increase

Question 5

5000 x 1.02^4 (oe, compound method for Bank A)	**M1**
£5412.16 cao (Bank A total)	**A1**
5000 x 0.022 x 4 (oe, simple interest method for Bank B)	**M1**
£5440 cao (Bank B total)	**A1**
Bank B is higher by £27.84 cao (dep on both totals correct, ft)	**A1**

Answer: Bank B, by £27.84

Question 6

a correct trial calculation, e.g. 2400 x 1.03^7 = 2951.70 (awrt)	**M1**
a correct trial calculation showing the value exceeds 3000, e.g. 2400 x 1.03^8 = 3040.25 (awrt)	**M1**
8 cao, with correct supporting trials shown	**A1**

Answer: 8 complete years

Question 7

60 * 0.92 * 1.08 oe	**M1**
awrt 59.6 kg	**A1**

Answer: 59.6 kg

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