3.10 Simple and Compound Interest: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A machine is worth £648 after losing 10% of its value each year for 2 years (compound depreciation). Work out the original price before the two years.

(2)

2 A price is increased by 10% and then decreased by 10%. Work out the overall percentage change in the price.

(2)

3 Sam wants £1200 at the end of 2 years. He deposits £1000 now into an account paying 4% compound interest and plans to add one extra deposit at the start of the second year. How much must he add at the start of the second year so that at the end of year 2 he has £1200? Give your answer to 2 decimal places.

(4)

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4 £1500 is invested for 2 years at 3% per year. Work out how much more interest is earned with compound interest than with simple interest. Give your answer to the nearest penny.

(4)

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5 A loan of £1200 is charged simple interest at 5% per year for 3 years. Calculate the total interest charged and the total amount to repay after 3 years.

(3)

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6 A deposit of £400 is left for 1 year at 10% compound interest. Work out the amount after 1 year.

(2)

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7 An amount of £250 is invested at 8% compound interest per year. Find the value after 3 years, correct to 2 decimal places.

(3)

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8 If a multiplier is 1.06, state the annual percentage rate of increase.

(2)

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9 Calculate the simple interest earned on £800 invested at 4% per year for 3 years. Give the interest only.

(1)

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Mark scheme · 3.10 Simple and Compound Interest: 30-minute Pack

Question 1

method: divide 648 by 0.9^2 or 648 ÷ 0.81	M1
800 (pounds) cao	A1

Answer: **£800**

Question 2

method: use multipliers 1.10 x 0.90 = 0.99 shown	M1
1% decrease cao	A1

Answer: **1% decrease**

Question 3

value after year 1: 1000 x 1.04 = 1040 shown	M1
let extra deposit = x, then (1040 + x) x 1.04 = 1200 or equivalent equation shown	M1
correct method to find pre-final total: 1040 + x = 1200 ÷ 1.04	M1
113.85 (pounds) cao	A1

Answer: **£113.85**

Question 4

compound amount 1500 x 1.03^2	M1
compound total £1591.35	A1
simple interest £90	M1
£1.35 cao	A1

Answer: **£1.35**

Question 5

method: 1200 x 0.05 x 3 or equivalent method for simple interest	M1
180 (pounds) interest cao	A1
1380 (pounds) total amount cao	A1

Answer: **£180; £1380**

Question 6

method: use multiplier 1.10 or 400 x 1.10	M1
440 (pounds) cao	A1

Answer: **£440**

Question 7

method: 250 x 1.08^3 or use multiplier 1.08 three times	M1
correct intermediate product leading to about 314.928	M1
314.93 (pounds) cao	A1

Answer: **£314.93**

Question 8

method: subtract 1 from multiplier or state 0.06	M1
6% cao	A1

Answer: **6%**

Question 9

96 (pounds) cao	B1

Answer: **£96**

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