3.10 Simple and Compound Interest: Test Pack

Calculators not allowed · about 55 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Calculate the simple interest earned on a savings account that holds £500 at 3% per year for 2 years. Give the interest only.

(2)

2 Compare simple and compound interest on £1000 at 5% per year for 3 years. Find the simple interest total and the compound total, then give the difference between them (compound minus simple).

(3)

3 A shirt is reduced by 20% in a sale. Later the price is increased by 25%. If the original price was £150, what is the final price after both changes?

(2)

4 A car loses 18% of its value each year compound. Its value now, after 3 years, is £1976. Find the price of the car when it was new (value before the 3 years).

(3)

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5 A simple interest loan charges a total of 9% interest over 3 years. Work out the annual simple interest rate.

(2)

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6 Work out the simple interest on £200 invested at 5% per year for 4 years.

(2)

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7 A trader buys an item for £20 and sells it for £10. Work out the percentage loss.

(3)

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8 £5000 is invested for 3 years at 3% compound interest per year. Work out the total amount at the end of 3 years. Give your answer to the nearest penny.

(3)

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9 A trader buys an item for £50 and sells it for £45. Work out the percentage loss.

(3)

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10 Calculate the amount after 2 years when £600 is invested at 5% compound interest per year. Give your answer to 2 decimal places.

(3)

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11 A trader buys an item for £25 and sells it for £22.50. Work out the percentage loss.

(3)

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12 £500 is invested for 3 years at 4% 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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13 A laptop worth £1200 loses 10% of its value each year compound. Find its value after 2 years.

(3)

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14 Work out the value of £500 invested for 2 years at 4% compound interest per year. Give your answer to 2 decimal places.

(2)

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15 Compare simple and compound interest on £2000 at 4% per year for 2 years. Find the simple interest and the compound interest earned, then give the difference between them (compound minus simple).

(3)

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16 If a multiplier is 0.93, state the annual percentage rate of decrease.

(1)

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17 A bicycle costs £240 and depreciates by 12% of its original value in the first year (simple depreciation). Work out its value after one year.

(1)

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18 A savings account offers 3% compound interest. Write down the multiplier used to find the value after one year.

(1)

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Mark scheme · 3.10 Simple and Compound Interest: Test Pack

Question 1

method: 500 x 0.03 x 2 or 500 x (3% per year for 2 years) shown	M1
30 (pounds) cao	A1

Answer: **£30**

Question 2

method for simple interest: 1000 x 0.05 x 3 = 150	M1
method for compound: 1000 x 1.05^3 = 1157.625 or equivalent	M1
difference 7.63 (pounds) cao (1157.63 - 1150.00 rounded to 2 dp)	A1

Answer: **Simple interest = £150; compound total = £1157.63; difference = £7.63**

Question 3

method: 150 x 0.80 then result x 1.25 or equivalent	M1
150 (pounds) cao	A1

Answer: **£150**

Question 4

method: use multiplier 0.82^3 or set original x 0.82^3 = 1976	M1
divide: original = 1976 ÷ 0.82^3 shown	M1
3584 (pounds) cao	A1

Answer: **£3584**

Question 5

method: divide total percentage by number of years 9% ÷ 3	M1
3% per year cao	A1

Answer: **3% per year**

Question 6

£200 x 5/100 = £10 per year or P x R x T ÷ 100	M1
£40 cao	A1

Answer: **£40**

Question 7

loss of £10 found	M1
£10 ÷ £20 x 100	M1
50% loss cao	A1

Answer: **50% loss**

Question 8

multiplier 1.03 used	M1
5000 x 1.03^3	M1
£5463.64 cao	A1

Answer: **£5463.64**

Question 9

loss of £5 found	M1
£5 ÷ £50 x 100	M1
10% loss cao	A1

Answer: **10% loss**

Question 10

method: use multiplier 1.05 twice or write 600 x 1.05^2	M1
correct intermediate multiplication leading to 600 x 1.1025 or equivalent	M1
661.50 (pounds) cao	A1

Answer: **£661.50**

Question 11

loss of £2.50 found	M1
£2.50 ÷ £25 x 100	M1
10% loss cao	A1

Answer: **10% loss**

Question 12

compound amount 500 x 1.04^3	M1
compound total £562.43	A1
simple interest £60	M1
£2.43 cao	A1

Answer: **£2.43**

Question 13

method: use multiplier 0.90 twice or 1200 x 0.9^2	M1
correct intermediate product 1200 x 0.81 or equivalent	M1
972 (pounds) cao	A1

Answer: **£972**

Question 14

use multiplier 1.04 twice or 500*1.04^2	M1
540.80 (pounds) cao	A1

Answer: **£540.80**

Question 15

method for simple interest: 2000*0.04*2 = 160	M1
method for compound interest: 2000*1.04^2 - 2000 = 163.20 or equivalent	M1
difference = 3.20 (pounds) cao	A1

Answer: **Simple interest = £160; compound interest = £163.20; difference = £3.20**

Question 16

7% cao	B1

Answer: **7%**

Question 17

211.20 (pounds) cao	B1

Answer: **£211.20**

Question 18

1.03 cao	B1

Answer: **1.03**

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