GCSE HIGHER · REVISION MAT 4

Growth, decay and compound interest

1 Find the simple interest on £250 at 4% per year for 5 years.

2 A bike costs £640 and loses 25% of its value in a year.

Find its value after a year.

3 Explain why a graph of compound growth is a curve, not a straight line.

4 £3000 is invested at 2% compound interest per year.

Find its value after 5 years.

5 A population of 12 000 grows by 3% each year.

Show that it is more than 13 000 after 3 years.

6 A £900 phone loses 30% of its value in year 1 and 20% in each later year.

Find its value after 3 years.

7 Show that $x^3 + 2x - 5 = 0$ can be rearranged to

$$x = \sqrt[3]{5 - 2x}$$

8 Use $x_{n+1} = \sqrt[3]{5 - 2x_n}$ with $x_1 = 1$ to find x_3 to 3 d.p.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Growth, decay and compound interest

1 **£50**

2 640×0.75

£480

3 **The amount added each year keeps getting bigger.**

4 3000×1.02^5

£3312.24

5 $12\,000 \times 1.03^3 = 13\,112.7$

13 113 > 13 000

6 $900 \times 0.7 \times 0.8^2$

£403.20

7 $x^3 = 5 - 2x$

$x = \sqrt[3]{5 - 2x}$

8 $x_2 = \sqrt[3]{3} = 1.442$

$x_3 = \sqrt[3]{2.116} = 1.284$

Mr&Mrs MATHS