GCSE HIGHER · REVISION MAT 5

Growth, decay and compound interest

1 Find the simple interest on £1500 at 2.5% per year for 2 years.

2 Write down the multiplier for a 3.5% increase.

3 Explain why a value that falls by 10% each year never reaches zero.

4 A loan of £10 000 has 6% compound interest per year.

How much is owed after 2 years if nothing is repaid?

5 A £25 000 machine loses 18% of its value each year.

Show that it is worth £16 810 after 2 years.

6 A town of 45 000 people grows by 2% each year.

After how many whole years does it first pass 50 000?

7 $x_{n+1} = 1 + \frac{3}{x_n}$ and $x_1 = 2$.

Find x_2, x_3 and x_4.

8 £800 grows to £926.10 after 3 years of compound interest.

Find the annual interest rate.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 5

Growth, decay and compound interest

1 **£75**

2 **1.035**

3 **Each year it is multiplied by 0.9, which never gives 0.**

4 $10\,000 \times 1.06^2$

£11 236

5 $25\,000 \times 0.82^2$

= 16 810

6 $1.02^5 = 1.104$, $1.02^6 = 1.126$

Need more than 1.111

6 years

7 $x_2 = 2.5$

$x_3 = 2.2$

$x_4 = 2.364$

8 $\frac{926.10}{800} = 1.157625$

$\sqrt[3]{1.157625} = 1.05$

5%

Mr&Mrs MATHS