GCSE HIGHER · REVISION MAT 1

Growth, decay and compound interest

1 Find the simple interest on £500 at 2% per year for 3 years.

2 Write down the multiplier for compound growth of 4% per year.

3 Explain why compound interest gives more than simple interest after 2 years.

4 £2000 is invested at 3% compound interest per year.

Find its value after 4 years.

5 A car worth £15 000 loses 12% of its value each year.

Show that it is worth £11 616 after 2 years.

6 500 bacteria grow by 20% each hour.

After how many whole hours are there first more than 2000?

7 $u_{n+1} = 0.9u_n + 20$ and $u_1 = 100$.

Find u_3.

8 An investment doubles in 10 years at r% compound interest.

Find r to 1 d.p.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 1

Growth, decay and compound interest

1 $500 \times 0.02 \times 3$

£30

2 **1.04**

3 **With compound interest, interest is also earned on the first year's interest.**

4 2000×1.03^4

£2251.02

5 $15\,000 \times 0.88^2$

= 11 616

6 $1.2^7 = 3.58$, $1.2^8 = 4.30$

Need more than 4 times

8 hours

7 $u_2 = 90 + 20 = 110$

$u_3 = 99 + 20$

$u_3 = 119$

8 $\left(1 + \frac{r}{100}\right)^{10} = 2$

$1 + \frac{r}{100} = 2^{0.1} = 1.0718$

$r = 7.2$

Mr&Mrs MATHS