Growth/decay factors

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Write the multiplier for a 6% increase. [2 marks]

$1+\frac{6}{100}=1.06$.

Answer: 1.06

2. Write the multiplier for a 23% decrease. [2 marks]

$1-\frac{23}{100}=0.77$.

Answer: 0.77

3. Increase 800 by 5% for each of 2 periods. [2 marks]

$800(1.05)^2=882$.

Answer: 882

4. Reduce 600 by 10% for each of 3 periods. [2 marks]

$600(0.9)^3=437.4$.

Answer: 437.4

5. A model is $V=900(0.92)^t$ with t in years. State the annual percentage change. [2 marks]

$1-0.92=0.08$.

Answer: 8% decrease

6. A bacteria model triples every 2 hours from 20 units. Write a model using hours t and find the value at $t=6$. [3 marks]

There are $\frac{t}{2}$ growth periods. At 6 hours there are 3 periods: $20\times 27=540$.

Answer: $N=20\times 3^{\frac{t}{2}}$; 540 units.