Multiple choice questions - Iteration, growth and decay

Year: Year 11 · 10

Question 1 The multiplier for an increase of 8% is

- ◯ **A.** 0.08
- ◯ **B.** 1.8
- ◯ **C.** 1.08
- ◯ **D.** 0.92

Question 2 The multiplier for a decrease of 12% is

- ◯ **A.** 0.12
- ◯ **B.** 0.88
- ◯ **C.** 1.12
- ◯ **D.** 0.8

Question 3 £400 grows at 5% compound for 2 years. The calculation is

- ◯ **A.** $400 \times 1.05 \times 2$
- ◯ **B.** 400×1.05^2
- ◯ **C.** 400×0.05^2
- ◯ **D.** $400 + 0.05 \times 2$

Question 4 £600 at 5% simple interest for 3 years earns

- ◯ **A.** £30
- ◯ **B.** £90
- ◯ **C.** £94.58
- ◯ **D.** £18

Question 5 A car worth £10 000 loses 10% a year. After 2 years it is worth

- ◯ **A.** £8000
- ◯ **B.** £8100
- ◯ **C.** £9000
- ◯ **D.** £8200

Question 6 A population is 5000 and doubles each year. After 3 years it is

- ◯ **A.** 15 000
- ◯ **B.** 30 000
- ◯ **C.** 40 000

- ◯ **D.** 10 000

Question 7 An amount grows by 20% to £600. The original was

- ◯ **A.** £480
- ◯ **B.** £500
- ◯ **C.** £520
- ◯ **D.** £720

Question 8 (Higher) An iteration is $x_{n+1} = 2x_n - 1$ with $x_0 = 3$. x_2 is

- ◯ **A.** 5
- ◯ **B.** 9
- ◯ **C.** 7
- ◯ **D.** 3

Question 9 (Higher) A change of sign in $f(x)$ between $x = 1$ and $x = 2$ shows

- ◯ **A.** no solution
- ◯ **B.** a root between 1 and 2
- ◯ **C.** f(1.5) is zero
- ◯ **D.** a turning point

Question 10 (Higher) Iteration values 1.2164, 1.2127, 1.2136, 1.2134 suggest the solution to 2 d.p. is

- ◯ **A.** 1.2
- ◯ **B.** 1.22
- ◯ **C.** 1.21
- ◯ **D.** 1.20

Answer grid - Iteration, growth and decay

Year: Year 11

Question	Answer	Explanation
1	**C**	100% + 8% = 108% = 1.08.
2	**B**	100% - 12% = 88%.
3	**B**	Multiplier raised to the power of the years.
4	**B**	5% of 600 is 30 per year; 3 years gives 90.
5	**B**	10000 x 0.9 x 0.9 = 8100.
6	**C**	5000 x 8 = 40 000.
7	**B**	600 / 1.2 = 500.
8	**B**	x1=5, x2=9.
9	**B**	Continuous function crossing zero.
10	**C**	All round to 1.21.