Multiple choice questions - Exponentials and logarithms

Year: Year 12 · 10

Question 1 $\log_2 16 =$

- **A.** 2
- **B.** 3
- **C.** 4
- **D.** 8

Question 2 $\log 6 + \log 2 =$

- **A.** $\log 8$
- **B.** $\log 12$
- **C.** $\log 4$
- **D.** $\log 3$

Question 3 $3 \log 2 =$

- **A.** $\log 6$
- **B.** $\log 8$
- **C.** $\log 5$
- **D.** $\log 9$

Question 4 $\ln e^5 =$

- **A.** e
- **B.** 5
- **C.** $5e$
- **D.** 1

Question 5 The graph of $y = 2^x$ passes through

- **A.** $(1, 0)$
- **B.** $(0, 1)$
- **C.** $(0, 0)$
- **D.** $(2, 0)$

Question 6 The solution of $e^x = 1$ is

- **A.** 1
- **B.** 0
- **C.** e

- ◯ **D.** -1

Question 7 $\dfrac{d}{dx}e^{2x} =$

- ◯ **A.** e^{2x}
- ◯ **B.** $2e^{2x}$
- ◯ **C.** $2xe^{2x-1}$
- ◯ **D.** $\frac{1}{2}e^{2x}$

Question 8 $\log(x+y)$ equals

- ◯ **A.** $\log x + \log y$
- ◯ **B.** $\log x \log y$
- ◯ **C.** it cannot be simplified
- ◯ **D.** $\log xy$

Question 9 A graph of $\log y$ against x is a straight line for

- ◯ **A.** $y = ax^n$
- ◯ **B.** $y = ab^x$
- ◯ **C.** $y = a + bx$
- ◯ **D.** $y = \frac{a}{x}$

Question 10 Half-life with decay rate k is

- ◯ **A.** $\frac{1}{k}$
- ◯ **B.** $\frac{\ln 2}{k}$
- ◯ **C.** $k \ln 2$
- ◯ **D.** $\frac{k}{2}$

Answer grid - Exponentials and logarithms

Year: Year 12

Question	Answer	Explanation
1	**C**	$2^4 = 16$.
2	**B**	Add logs: multiply.
3	**B**	$\log 2^3$.
4	**B**	Inverse functions.
5	**B**	$2^0 = 1$.
6	**B**	$\ln 1 = 0$.
7	**B**	ke^{kx}.
8	**C**	No law for a sum.
9	**B**	$\log y = x \log b + \log a$.
10	**B**	Solve $e^{-kt} = \frac{1}{2}$.