

Advanced Mathematical Operations

Mathematics · Answer Key · 12 Questions

1. What is the result of multiplying the constant Pi (rounded to 3.14) by the square root of 64?

- A) 25.12**
- B) 28.26
- C) 21.98
- D) 24.88

2. If a population grows at a rate of 1.05 per year, what multiplier represents the total growth factor over exactly 3 years?

- A) 1.15
- B) 1.157625**
- C) 1.1525
- D) 1.16

3. Which mathematical property states that $a(b + c) = ab + ac$?

- A) Associative property
- B) Commutative property
- C) Distributive property**
- D) Identity property

4. In base-16 (hexadecimal), what is the decimal equivalent of the product of 4 and A?

- A) 40**
- B) 44
- C) 36
- D) 64

5. If a light-year is approximately 9.46 trillion kilometres, how many kilometres are travelled in 0.5 light-years?

- A) 4.23 trillion km
- B) 4.73 trillion km**
- C) 4.82 trillion km
- D) 5.12 trillion km

6. Dividing a number by 0.001 is equivalent to multiplying that number by which value?

- A) 10
- B) 100
- C) 1000**
- D) 0.01

7. What is the product of $(x + 3)(x - 3)$?

A) $x^2 + 6x - 9$

B) $x^2 - 9$

C) $x^2 + 9$

D) $x^2 - 6x + 9$

8. How many seconds are in a day, calculated by multiplying 60 seconds by 60 minutes by 24 hours?

A) 84,600

B) 86,400

C) 88,200

D) 82,400

9. What is the quotient when 2^{10} is divided by 2^7 ?

A) 2^3

B) 2^{17}

C) $2^{1.42}$

D) 2^4

10. If sound travels at 343 metres per second, how far does it travel in 12 seconds?

A) 4,116 metres

B) 4,016 metres

C) 3,816 metres

D) 4,216 metres

11. What is the multiplicative inverse of 0.25?

A) -0.25

B) 4

C) 2.5

D) 0.75

12. By what factor must you multiply a 100cm length to convert it into 1 metre?

A) 10

B) 0.1

C) 0.01

D) 0.001