

Lesson 8: Index Laws — Multiplication and Division

Year 10 Mathematics Unit 1 — Block B | Worksheet

Name _____

Date _____

Class _____

Multiple Choice

Q1. Simplify $a^4 \times a^5$.

- A) a^9 B) a^{20} C) $2a^9$ D) a

Q2. Simplify $7^9 / 7^4$.

- A) 7^{13} B) 7^5 C) 7^{36} D) 1^5

Q3. Simplify $x^3 \times x^{(-2)} \times x^4$.

- A) x^5 B) x^{24} C) $x^{(-5)}$ D) $x^{(-24)}$

Q4. Which expression is equivalent to $(a^5 \times a^3) / a^2$?

- A) $a^{(15/2)}$ B) a^6 C) $a^{7.5}$ D) a^{10}

Q5. If $2^m \times 2^n = 128$ and $m = 3$, what is the value of n ?

- A) 3 B) 4 C) 5 D) 7

Short Answer

Q6. Simplify $a^7 \times a^{(-3)} / a^2$, leaving your answer in index form. (2 marks)

Q7. Simplify $(3^8 \times 3^{(-2)}) / 3^3$, giving your answer as a single power of 3. (3 marks)

Q8. Explain why $a^m \times a^n = a^{(m+n)}$ using an example with $a = 2$, $m = 3$ and $n = 4$. (3 marks)

Key Formulas

- Write any formulas you need here.