Index laws - topic test

Name: _____ Date: _____

15 questions | 27 marks | 45 minutes

Progress from reading powers to combining numerical laws and applying them to area.

No calculator needed.

1. Write $4 \times 4 \times 4$ as a power. [1 mark]

2. Evaluate 3^3. [1 mark]

3. Evaluate $(-2)^3$. [1 mark]

4. Write $5^2 \times 5^4$ as one power. [1 mark]

5. Write $7^6 \div 7^2$ as one power. [1 mark]

6. Write $(3^2)^4$ as one power. [1 mark]

7. Evaluate $(-9)^0$. [1 mark]

8. Evaluate -9^0. [1 mark]

9. Find n if $2^3 \times 2^n = 2^9$. [2 marks]

10. Simplify $\frac{10^7}{10^2 \times 10^3}$ and evaluate. [2 marks]

11. Simplify $\frac{(2^3)^3}{2^5}$ and evaluate. [2 marks]

12. Evaluate $2^3 + 2^4$ and explain why adding exponents would not work. [3 marks]

13. A student writes $6^5 \div 6^2 = 6^{5 \div 2}$. Correct the error. [3 marks]

14. Simplify $\frac{(3^2)^2 \times 3^3}{3^5}$ and evaluate. [3 marks]

15. A poster has width 2^3 cm and length 2^5 cm. [4 marks]

(a) Write the poster area as one power of 2, then evaluate. [2 marks]

(b) Each square tile has area 2^2 cm^2. How many whole tiles cover the poster without gaps or overlaps? [2 marks]