Questions on SPUR Objectives

7-2A Lesson Master

SKILLS Objective A
In 1–3, write as a whole number or simple fraction. Do all of the work in your head.

1. \( \frac{147}{1} = \) ____________
2. \( \left( \frac{2}{3} \right)^{14} = \) ____________
3. \( 423^0 = \) ____________

SKILLS Objective B
In 4–6, rewrite as a single power. Do all of the work in your head.

4. \( 43^2 \cdot 43^7 = \) ____________
5. \( 2^8 \cdot 5^8 = \) ____________
6. \( \frac{12^{13}}{12^{11}} = \) ____________

In 7–12, simplify the expression by hand; check with a CAS if necessary.

7. \( x^3 \cdot x^5 = \) ____________
8. \( (3a)^2 (2a)^3 = \) ____________
9. \( \frac{12r^7}{3t^4} = \) ____________
10. \( (-12a)^2 (-5n^3)^3 = \) ____________
11. \( \frac{(6a)^2}{(2d^3)^2} = \) ____________
12. \( \frac{a^3b^3c^4}{be^2d^4} = \) ____________
13. Solve for \( a \): \( 4^a \cdot 4^7 = 4^9 = \) ____________
14. Solve for \( n \): \( (5^2)^n = 5^{12} = \) ____________

PROPERTIES Objective E
15. If \( a = 7 \) and \( b = 4 \), then \( x^a \cdot x^b = x^{11} \). Find three other pairs of positive integers that are solutions to this equation.

16. How many zeros are at the end of the number \( N = 2^{16} \cdot 3^{17} \cdot 5^{18} \cdot 19 \) when written in base 10? ____________

17. Write an expression equivalent to \( 24x^{10} \) using
   a. the Product of Powers Postulate. ____________
   b. the Quotient of Powers Theorem. ____________
   c. more than one of the postulates and theorems in this lesson. ____________