Name: _____ H.W. # 43

Multiply & Divide Exponent Rules

(1-3) Write each of the following in exponential form.

1. (7)(7)(7)(7)(7)(7)(7)(7) = 7^8 2. (–9)(–9)(–9)(–9) = $(-9)^4$ 3. $(\frac{4}{5})(\frac{4}{5})(\frac{4}{5}) = (\frac{4}{5})^3$

(4-9) Write an equivalent expression for each of the following. Leave answers in exponential form.

4. $9^3 \cdot 9^2 = 9^5$ 5. $2^5 \cdot 2^1 = 2^6$ 6. $3^{-4} \cdot 3^6 = 3^2$

7. $12^7 \cdot 12^{-8} = 12^{-1}$ 8. $8^{-3} \cdot 8^{-9} = 8^{-12}$ 9. $4^{10} \cdot 16 = 4^{12}$

$4^{10} \cdot 4^2$

(10-11) Fill in each box with the missing number which will make each statement true.

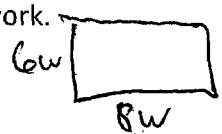
10. $C^{\boxed{15}} \cdot C^3 = C^{12}$ 11. $W^7 \div W^{\boxed{2}} = W^5$

(12-17) Write an equivalent expression for each of the following. Leave in exponential form.

12. $\frac{2^{14}}{2^5} = 2^9$ 13. $\frac{10^6}{10^9} = 10^{-3}$ 14. $\frac{25^{-14}}{25^{-19}} = 25^5$

15. $\frac{3^{10}}{3^{-2}} = 3^{12}$ 16. $\frac{r^{-7}}{r^6} = r^{-13}$ 17. $\frac{a^3 \cdot b^7}{a \cdot b^2} = a^2b^5$

18. A rectangle has a length represented by 8w and a width represented by 6w. What is the **area** of the rectangle expressed in terms of w? Show work.



Area: $48w^2$

$A = lw$
$A = (6w)(8w)$
$A = 48w^2$

19. What number, written in exponential form, can be substituted for m in the equation below?

$7^3 \cdot m = 7^9$ m = 7^6 Explain: $3 + 6 = 9$

20. Simplify: Show work. $\left(\frac{5}{d^2}\right)\left(\frac{4d^9}{2}\right) = \frac{20d^9}{2d^2} = 10d^7$

21. Multiply: $(2x^3y^5)(9x^4y) = 18x^7y^9$