Name: Key

Chapter 10 Quiz Study Guide

1. Write the product using exponents. $6 \cdot 6 \cdot 6$ 6^3	2. Write the product using exponents. $2 \cdot 2 \cdot x \cdot x \cdot x \cdot y \cdot y$ $2^2 x^3 y^2$
3. Write the product using exponents. $p \cdot p \cdot p \cdot p \cdot p$ p^5	4. Write the product using exponents. $(-4) \cdot (-4) \cdot (-4) \cdot (-4) \cdot (-4) \cdot (-4)$ $(-4)^6$
5. Write the product using exponents. $\left(\frac{2}{3}\right) \cdot \left(\frac{2}{3}\right) \cdot \left(\frac{2}{3}\right) \cdot \left(\frac{2}{3}\right)$ $\left(\frac{2}{3}\right)^4$	6. Write the product using exponents. $7 \cdot 7 \cdot 7 \cdot m \cdot m \cdot m \cdot m \cdot n$ $7^3 m^4 n$
7. Simplify the expression. 4^2 16	8. Simplify the expression. 1^{20} 1
9. Simplify the expression. $(-3)^2$ 9	10. Simplify the expression. -5^2 -25
11. Simplify the expression. 2^3 8	12. Simplify the expression. $\left(\frac{1}{2}\right)^2$ $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$

13. Simplify the expression.

$x^2 \cdot x^3$

$x^{2+3} = x^5$

14. Simplify the expression.

$y^9 \cdot y \cdot y^3$

$y^{9+1+3} = y^{13}$

15. Simplify the expression.

$(b^3)^2$

$b^{3(2)} = b^6$

16. Simplify the expression.

$\frac{c^8}{c^3}$

$c^{8-3} = c^5$

17. Simplify the expression.

$(3d^4)^2$

$3^2 \cdot (d^4)^2 = 9d^8$

18. Simplify the expression.

$\frac{8^{11}}{8^{10}}$

$8^{11-10} = 8$

19. Simplify the expression.

$m^4 \cdot m^2 \cdot n^3 \cdot n^5$

$m^{4+2} \cdot n^{3+5} = m^6 n^8$

20. Simplify the expression.

$(-2x)^2$

$(-2)^2 \cdot x^2 = 4x^2$

21. Simplify the expression.

$(xyz)^2$

$x^2 y^2 z^2$

22. Simplify the expression.

$\frac{7^8}{7^6}$

$7^{8-6} = 7^2 = 49$

23. Simplify the expression.

$\frac{n^9}{n}$

$n^{9-1} = n^8$

24. Simplify the expression.

$\frac{\pi^{12}}{\pi^{11}}$

$\pi^{12-11} = \pi$

25. Simplify the expression.

$\frac{x^5 \cdot x^4}{x^8}$ $\frac{X^{5+4}}{X^8} = \frac{X^9}{X^8} = X$

26. Simplify the expression.

$\frac{x^{12}}{x^3} \cdot \frac{x^6}{x^2}$ $= X^{12-3} \cdot X^{6-2}$ $= X^9 \cdot X^4 = X^{9+4} = X^{13}$

27. Write the product using exponents.

$(-5) \cdot (-5) \cdot (-5) \cdot (-5)$

$(-5)^4$

28. Write the product using exponents.

$\left(-\frac{1}{3}\right) \cdot \left(-\frac{1}{3}\right)$ $\left(-\frac{1}{3}\right)^2$

29. Write the product using exponents.

$(-1.2) \cdot (-1.2) \cdot (-1.2) \cdot (-1.2)$

$(-1.2)^4$

30. Simplify the expression.

$w^2 \cdot w^6 - w^3 \cdot w^4$ $w^{6+2} - w^{3+4}$ $w^8 - w^7$

31. Simplify the expression.

$\frac{p^{10}}{p^8 \cdot p^2}$ $\frac{p^{10}}{p^{8+2}} = \frac{p^{10}}{p^{10}} = 1$

32. Simplify the expression. Write as a power.

$\frac{8^{12}}{8^7}$ $8^{12-7} = 8^5$

33. Simplify the expression. Write as a power.

$4 \cdot 4^2 \cdot 4^3$

$4^{1+2+3} = 4^6$

34. Simplify the expression.

$(4xy^3)^2$ $4^2 x^2 (y^3)^2$

$16x^2y^6$

35. Simplify the expression.

$j^8 \cdot j$ $j^{8+1} = j^9$

36. Simplify the expression.

$(-5)^2$ 25

37. Is $f^3 \cdot f^4$ equivalent to f^{12} ?
Explain why or why not.

$f^3 \cdot f^4 = f^{3+4} = f^7$

which is not equivalent to f^{12}

38. Is $(g^5)^6$ equivalent to g^{30} ?
Explain why or why not.

$(g^5)^6 = g^{5(6)} = g^{30}$

so yes they are equivalent

39. Is $2^2 \cdot 3^2$ equivalent to 6^2 ?
Explain why or why not.

$2^2 \cdot 3^2 = (2 \cdot 3)^2 = 6^2$

so they are equivalent

40. Is $(-3)^2$ equivalent to -3^2 ?
Explain why or why not.

$(-3)^2 = (-3)(-3) = 9$

$-3^2 = -1 \cdot 3^2 = -1 \cdot 9 = -9$

They are not equivalent

41. Is $(2h)^3$ equivalent to $2h^3$?
Explain why or why not.

$(2h)^3 = 2^3 \cdot h^3 = 8h^3$

so they are not equivalent

42. Is $j^2 \cdot j^3 \cdot j$ equivalent to j^5 ?
Explain why or why not.

$j^2 \cdot j^3 \cdot j = j^{2+3+1} = j^6$

which is not equivalent to j^5