6.0 More Practice with Properties of Exponents _____

(Name/Period)

Simplify each. Remember: No duplicate variables, no zero exponents, and no negative exponents in the final form.

1. 13^0

2. 5^{-3}

3. $\frac{3}{3^{-4}}$

4. $\frac{2}{4^{-1}}$

5. $-(7)^{-2}$

6. 46^{-1}

7. -6^0

8. $-(12x)^{-2}$

9. $\frac{1}{8^0}$

10. $6bc^0$

11. $-(11x)^0$

12. $\left(\frac{2}{9}\right)^{-2}$

13. $3m^{-8}p^0$

14. $\frac{5a^{-4}}{2c}$

15. $\frac{-3k^{-3}(mn)^3}{p^{-8}}$

16. $\left(\frac{2m}{3n}\right)^{-3}$

17. $8^{-2}q^3r^{-5}$

18. $-(10a)^{-4}b^0$

19. $\frac{11xy^{-1}z^0}{v^{-3}}$

20. $\frac{5m^{-1}}{9(ab)^{-4}c^7}$

Rewrite each expression using each base only once.

1. $4^5 \cdot 4^3$
2. $2^4 \cdot 2^6 \cdot 2^2$
3. $5^6 \cdot 5^{-2} \cdot 5^{-1}$
4. $10^{-4} \cdot 10^4 \cdot 10^2$
5. $7^9 \cdot 7^3 \cdot 7^{-10}$
6. $9^2 \cdot 9^{-8} \cdot 9^6$

Simplify each expression.

7. $z^8 z^5$
8. $-4k^{-3} \cdot 6k^4$
9. $(-5b^3)(-3b^6)$
10. $(13x^{-8})(3x^{10})$
11. $(-2h^5)(4h^{-3})$
12. $-8n \cdot 11n^9$
13. $(t^3)(t^6)(t^9)$
14. $(-f^{-8})(4f^{12})$
15. $(-5d^{-5})(6d^2)$
16. $mn^2 \cdot m^2n^{-4} \cdot mn^{-1}$
17. $(6a^3b^{-2})(-4ab^{-8})$
18. $(12mn)(-m^3n^{-2}p^5)(2m)$
19. $q^4 \cdot r^{-5} \cdot q^3 \cdot r^5$
20. $-3c^7d^{-2} \cdot 5c^{-3}d$
21. $fg^{-1}f^3g^5h^2 \cdot 2h^{-1}$

Complete each equation.

30. $9^{-2} \cdot 9^4 = 9^{\square}$
31. $5^{\square} \cdot 5^3 = 5^{-5}$
32. $2^8 \cdot 2^{\square} = 2^{-2}$
33. $z^{\square} \cdot z^{-5} = z^3$
34. $m^{-3} \cdot m^6 \cdot m^{\square} = m^2$
35. $d^7 \cdot d^{-13} \cdot d^{-9} = d^{\square}$

Simplify each expression. Use only positive exponents.

1. $(2t)^{-6}$
2. $5m^5m^{-8}$
3. $(4.5)^4(4.5)^{-2}$
4. $(m^7t^{-5})^2$
5. $(x^2n^4)(n^{-8})$
6. $(w^{-2}j^{-4})^{-3}(j^7j^3)$
7. $(t^6)^3(m)^2$
8. $(3n^4)^2$
9. $\dfrac{r^5}{g^{-3}}$
10. $\dfrac{1}{a^{-4}}$
11. $\dfrac{w^7}{w^{-6}}$
12. $\dfrac{6}{t^{-4}}$
13. $\dfrac{a^2b^{-7}c^4}{a^5b^3c^{-2}}$
14. $\dfrac{(2t^5)^3}{4r^8t^{-1}}$
15. $\left(\dfrac{a^6}{a^2}\right)^{-3}$
16. $\left(\dfrac{c^5c^{-3}}{c^{-4}}\right)^{-2}$
17. $\left(\dfrac{4x^3}{8x^{-2}}\right)^0$
18. $\left(\dfrac{y^{-3}}{y^3}\right)^2$

Simplify each expression.

1. $(z^5)^3$
2. $(m^4)^{10}$
3. $(v^7)^2$
4. $(k^4)^3$
5. $(x^7)^{-2}$
6. $(r^4)^{-6}$
7. $b(b^{-8})^{-3}$
8. $h^2(h^7)^0$
9. $(m^3)^7 n^5$
10. $(x^6)^2(y^3)^0$
11. $(g^5)^{-5}(g^6)^{-2}$
12. $(v^2)^3(w^4)^{-3}$
13. $(6a)^4$
14. $(5f)^{-3}$
15. $(9z)^{-4}$
16. $(10m^5)^{-2}$
17. $(6f^{-2})^{-3}$
18. $(9d^{10})^{-2}$
19. $(gh)^0$
20. $(qr^6)^4$
21. $(4a^3)^2 a^5$
22. $(m^4n^3)^7(m^4)^3$
23. $(xy^2)(xy^2)^{-1}$
24. $z(y^{-5}z^7)^{-1}y^{-5}$
25. $(7t^{-3})^3(s^5t^4)^2$
26. $m^{-9}(m^{-1}n^2)^2n^8$
27. $(3b^{-4}c^{-2})^6c^3$
28. $5x^{-5}y^2(2x^{-14})^2$

Simplify each expression.

1. $\dfrac{5^6}{5^2}$
2. $\dfrac{5^5}{5^2}$
3. $\dfrac{x^7}{x^4}$
4. $\dfrac{m^{-3}}{m^{-5}}$
5. $\dfrac{x^6y^9}{x^2y^5}$
6. $\dfrac{21m^8}{3m^2}$
7. $\left(\dfrac{3}{5}\right)^4$
8. $\left(\dfrac{3x}{2y}\right)^3$
9. $\left(\dfrac{4}{7}\right)^{-2}$
10. $\left(-\dfrac{3x^4}{2y^5}\right)^{-3}$