

FMP10

WS ~~3.0~~ Exponent Laws Review

2.0

Write the expression with exponents. Simplify if possible.

1. $7 \times 7 \times 7 \times a \times a \times a \times a \times b$

2. $3 \times 3 \times a \times a \times a \times d \times d$

3. $2 \times 2 \times 3 \times 3 \times e \times e \times e \times e$

4. $5 \times 5 \times 5 \times a^2 \times a \times a \times b^3 \times b \times b$

Simplify.

5. $x^{20} \times x^{13}$

6. $x^{52} \times x^{101}$

7. $x^7 \times x^9$

8. $x^3 \times x^4$

9. $(a^2b^3)(a^3b^4)$

10. $(a^4b^5)(a^7b^6)$

11. $(a^7b^5)(a^{13}b^7)$

12. $(3a^2b)(2ab^2)$

13. ~~(a^4b^5)(a^7b^6)~~

14. $(21md)(3m^2)$

15. $(-7gh)(-2g^2h^3)$

16. $(-5pq^2)(4p^9q^{11})$

17. $-3cde(ce^3)$

18. $\frac{x^{32}}{x^{10}}$

19. $\frac{x^{15}}{x^9}$

20. $\frac{x^{49}}{x^{21}}$

21. $\frac{x^{14}}{x^{10}}$

22. $\frac{x^{21}}{x^{19}}$

23. $\frac{x^2x^7}{x^5}$

24. $\frac{x^9x^{11}}{x^8}$

25. $\frac{x^{41}x^{32}}{x^{70}}$

26. $\frac{a^7b^5c^{10}}{a^6b^3c^5}$

27. $\frac{c^3de^4}{c^2de}$

28. $\frac{f^9g^{10}h^{11}}{f^4g^6h^9}$

29. $\frac{k^{18}m^9n^{10}}{k^{10}mn^4}$

30. $\frac{15p^2q^4}{-3pq^3}$

31. $\frac{-21xyz^5}{-7xyz^3}$

32. $(x^9)^3$

33. $(x^5)^4$

34. $(x^7)^5$

35. $(x^6)^2$

36. a^0

37. $(2a^2)^3$

38. $(3a^4)^4$

39. $(-3a^2)^3$

40. $(-9a^2b^3)^2$

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

42. $\left(\frac{pq^3}{r^2}\right)^4$

43. $\left(\frac{16r^3s}{4r^2t^2}\right)^2$

44. $\left(-\frac{2}{3}w^2\right)^3$

45. $\left(-\frac{5}{4}ab^2\right)^2$

KEY

1. $343a^4b$
 2. $9a^3d^2$
 3. $36e^4$
 4. $125a^4b^5$
 5. x^{33}
 6. x^{153}
 7. x^{16}
 8. x^7
 9. a^5b^7
 10. $a^{11}b^{11}$
 11. $a^{20}b^{12}$
 12. $6a^3b^3$
 13. $10c^4d^5$
 14. $63m^3d$
 15. $14g^3h^4$
 16. $-20p^{10}q^{13}$
 17. $-3c^2de^4$
 18. x^{22}
 19. x^6
 20. x^{28}
 21. x^4
 22. x^2
 23. x^4
 24. x^{12}
 25. x^3
 26. ab^2c^5
 27. ce^3
 28. $f^5g^4h^2$
 29. $k^8m^8n^6$
 30. $-5pq$
 31. $3z^2$
 32. x^{27}
 33. x^{20}
 34. x^{35}
 35. x^{12}
 36. 1
 37. $8a^6$
 38. $81a^{16}$
 39. $-27a^6$
 40. $81a^4b^6$
 41. $\frac{m^6}{n^9}$
 42. $\frac{p^4q^{12}}{r^8}$
 43. $\frac{16r^2s^2}{t^4}$
 44. $-\frac{8w^6}{27}$
 45. $\frac{25a^2b^4}{16}$
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