Chapter 3 Section 2: Basic Rules for Exponents

Problems

Use the rules for exponents given in the lesson to simplify each monomial.

1. $5^4 \cdot 5^3$ as a power with base 5

2. $6^2 \cdot 6^5$ as a power with base 6

3. $x^7 \cdot x^3$

4. $y^5 \cdot y^8$

5. $7^2 \cdot 7 \cdot 7^5$ as a power with base 7

6. $10^3 \cdot 2^4$

7. $6^2 \cdot 4^3$

8. $13^3 \cdot 13^4 \cdot 13$ as a power of 13

9. $2^4 \cdot 5^4$ as a power of 10

10. $3^3 \cdot 2^3$ as a power of 6

11. $\left(x^5\right)^2$

12. $(4x)^5$

13. $(8y)^4$

14. $\left(y^2\right)^5$

15. $(2y)^2 \cdot 2y^2 \cdot 4y$

16. $3x^3 \cdot (9x)^2 \cdot x$

17. $2 \cdot 2x \cdot 2^2 x^2 \cdot 2^3 x^3$

18. $y \cdot 3y \cdot 3^2 y^2 \cdot 3^3 y^3$

19. $\left[\left(3a^2t\right)^2\right]^2$

20. $\left(3x^2y^3\right)^2$

21. $\left(10^2 x^3 y^4\right)^2$

22. $\left(2^2 A^{15} B^{22}\right)^2$

23. $\left[3a\left(a^5b\right)^2\right]^2$

24. $\left[x^4\left(2y^5z^3\right)^2\right]^2$

25. $(2xyz)^3 (xyz)$

26. $(3abc)(3abc)^2$

27. $\left[(5at)^2 (2a)^2\right]^3$

28. $\left[(3cv)^2 (2v)^2\right]^3$

29. $\left(2uv^2\right)^2 \left(3u^2v\right)^2$

30. $\left(2M^2W^2\right)^3 \left(3M^3W^4\right)^2$

Use the exponent rules to simplify each expression.

31. $\left(\frac{3y^4}{4x^3}\right)^3$

32. $\left(\frac{2a^8}{z^9}\right)^{10}$

33. $\left(\frac{2t^9}{3S^4}\right)^5$

34. $\left(\frac{11xy^4}{10z^7}\right)^2$

35. $\left(\frac{A^4}{B^4C^5}\right)^{100}$

36. $\left(\frac{XY^6}{A^8Z^5}\right)^9$

Simplify each expression.

37. $7-5^2\cdot(3+5)\div 2^2$

38. $4+2^3\cdot(5-4)\div 3^2$

39. $(7-5)^2\cdot(3+5)\div(2-1)^2\cdot 2^2$

40. $\left[1+27\left(\frac{2}{3}\right)^3\right]^2$

41. $100-2\cdot\left(5+4\cdot 3^2\right)$

42. Write $7^7\cdot 7^5\cdot 7$ as a power of 7.

43. Write -32 as a power of 2.