

p. 15 Exponents, Powers and Variables

Jan 11, 2013

1. 5^3
3 exponent } power
5 $\Rightarrow$ base }

2. 10^7
7 - exponent } power
10 - base }

$$5. \quad 3 \times 3 \times 3 \times 3 \times 3 \\ = 3^5 = 243$$

$$3^5 = 3 \times 3 \times 3 \times 3 \times 3 \\ 3^x \times 3^y = 3^{x+y}$$

$$10. r \times r \times r \times r \times r \times r \times r \times r \times r = r^8$$

$$11. 5^2 = 5 \times 5$$

$$13. 2^5 = 2 \times 2 \times 2 \times 2 \times 2$$

$$15. 0^3 = 0 \times 0 \times 0$$

$$17. 5x^3 = 5x \times x \times x$$

$$19. 3 \text{ to the fourth} = 3^4$$

34.

$$5^3 = 125$$

$$40. (1.1)^3$$

$$= 1.331$$

36.

$$7^3 = 343$$

49.

$$7^2 + 3^2$$

$$= 49 + 9$$

$$= 58$$

57.

$$7^2 + 3^3$$

$$= 49 + 27$$

$$= 76$$

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The Exponent. Rules

When you multiply exponents to the same base, you add them

$$1. \quad 5^3 \times 5^4 \\ = 5^7$$

$$3. \quad 7^5 \times 7^5 \\ = 7^{10}$$

$$5. \quad 4^2 \times 4^9 \\ = 4^{11}$$

10. $4^5 \div 4^3$
 $= 4^{5-3}$
 $= 4^2$

When divide exponents
to same base, you
subtract them.

12. $9^2 \div 9^2 = 9^0 = 1$

anything to the power
of zero equals 1.

18. $(2^3)^4$
 12

$= 2^4$

20. $(4^2)^7$

$= 4^{14}$

22. $(5^4)^4$
 $= 5^{16}$

power law:
 multiply the
 exponents

27.

$$5^3 \times 5^x = 5^7$$

$$\therefore x = 4$$

29.

$$8^x \times 8^2 = 8^8$$

$$\therefore x = 6$$

33.

$$t^x \times t^3 = t^6$$

$$\therefore x = 3$$

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$$\left(-\frac{2}{3}\right)^5$$

$$= \frac{(-2)^5}{3^5}$$

Homework

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box 4 p. 18

Exam Review.