## Curriculum Outcome

(N1) Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by: representing repeated multiplication using powers; using patterns to show that a power with an exponent of zero is equal to one; solving problems involving powers.

(N2) Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents.

Student Friendly:

"Exponent Law for a Quotient of Powers"
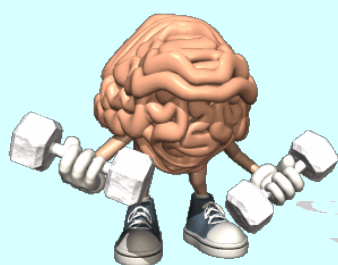
Get those brain muscles pumping!!!

Quiz TIME

Write each expression as a product and then evaluate the following:

1) 3^2 x 3^2

$3 \times 3 \times 3 \times 3$

3^4

2) 2^2 x 2^5

$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

2^7

Do you notice anything???

$(-5)(-5)$ $(-5)(-5)(-5)(-5)$

3) $(-5)^2$ x $(-5)^4$

$(-5)^6$

Exponent Law for a Product of Powers

To multiply powers with the same base, add the exponents.

$$a^m \times a^n = a^{m+n}$$

must be the same base

Write each of the following as a single power and then evaluate.

1) $7^2 \times 7^4$

$= 7^6$

$= 117\,649$

2) $(-2)^5 \times (-2)^3$

$= (-2)^8$

$= 256$

3) $4^5 \times 4^1$

$= (4)^6$

$= 4096$

What happens when we divide powers with the same base?

Do you notice anything???

1) $\dfrac{2^6}{2^2} = \dfrac{\cancel{(2)}\cancel{(2)}(2)(2)(2)(2)}{\cancel{(2)}\cancel{(2)}}$

$$= 2^4$$

$$2^{6-2}$$

Exponent Law for a Quotient of Powers

To divide powers with the same base, subtract the exponents.

$$a^m \div a^n = a^{m-n}$$

must be the same base

What happens when we divide powers with the same base?

2) $\dfrac{7^9}{7^4} = 7^5$

$= 16\,807$

3) $\dfrac{(-5)^7}{(-5)^3} = (-5)^4$

$= 625$

Class/Homework

MUST COPY OUT QUESTION AND THEN ANSWER

Page 76 & 77

Questions :

,4acegh, 5bdfh,7,8

Attachments

Exponent Law 1 Review.pdf