1.4 EXPONENT LAWS (PART A) p.26

Note Title 9/14/2017

→ ANSWER TO A MULTIP. QUESTION

PRODUCT OF POWERS

EX) $(-2)^4 \cdot (-2)^3$

$= (-2)(-2)(-2)(-2) \cdot (-2)(-2)(-2)$

$= (-2)(-2)(-2)(-2)(-2)(-2)(-2)$

$= (-2)^7$

So, $a^m \cdot a^n = a^{m+n}$ } INTEGERS

↑ ↑

↳ SAME BASE (NOT A ZERO)

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

"KEEP THE BASE & ADD THE EXPONENTS"

→ ANSWER TO A ÷ QUESTION

① QUOTIENT OF POWERS

ex) $(-2)^4 \div (-2)^3$

$$= \frac{(-2)^4}{(-2)^3}$$

$$= \frac{(-2)(-2)(-2)(-2)}{(-2)(-2)(-2)}$$

$$= (-2)^1$$

$$= (-2)$$

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

"KEEP THE BASE & SUBTRACT THE EXPONENTS"

EXAMPLES:

1) $6^4 \cdot 6^2 \cdot 6^5 = 6^{4+2+5} = 6^{11}$

2) $(-3)^5 \cdot (-3)^7 \div (-3)^2 = (-3)^{5+7-2}$

$= (-3)^{10}$

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

$= -(-2)^2$

$= -(4) \longrightarrow -1 \cdot 4 = -4$

4) $(4x^2y^2)(2x^3y^2) = (4)(2)(x^2)(x^3)(y^2)(y^2)$

$= 8x^{2+3}y^{2+2}$

$= 8x^5y^4$

5) $\dfrac{24c^4d^2}{8c^2d} = 3c^{4-2}d^{2-1} = 3c^2d^1$

$d = d^1$

$= 3c^2d$

6) $3^2 \cdot 3 + 2^2 \cdot 2^4$

$3^{2+1} + 2^{2+4}$

$3^3 + 2^6$

$27 + 64$

91

$2^0 = 1$
$2^1 = 2$
$2^2 = 4$
$2^3 = 8$
$2^4 = 16$
$2^5 = 32$
$2^6 = 64$

7) $5^7 \div [(5^4 \cdot 5) \div 5^0] = 5^3$

5^{4+1}

$5^7 \div [(5^5) \div 5^0] = 5^3$

5^{5-0}

$5^7 \div [5^5] = 5^3$

5^{7-5}

$5^2 = 5^3$

$25 - 125$

-100