

BE-1B | WEDNESDAY 9-27-06

① $(-8x^2y)(-2x^3y^2)$

② $(xy)(xy)$

③ $2x^3(4x^5 + 6x^8)$

TAKE OUT HOMEWORK.

④ DEFINE A MONOMIAL.

(1.)

Try to see a pattern for
this "exponent rule"

$$\begin{aligned}
 (x^3)^4 &= x^3 \cdot x^3 \cdot x^3 \cdot x^3 \\
 &= (xxx)(xxx)(xxx)(xxx) \\
 &= \boxed{x^{12}}
 \end{aligned}$$

Do you see the "power to a power"
rule?

Power to
A Power
Exponent
Rule

$$(a^m)^n = a^{m \cdot n}$$

Ex) $(x^5)^2$

$$\{[(4)^3]^4\}^2$$

$$(y^4)^5$$

(2)

LET'S try to find the
"Group to a Power" rule:

$$\text{Ex) } (2x^3y)^2$$

$$= 2x^3y \cdot 2x^3y$$

$$= 2 \cdot 2 \cdot x^3 \cdot x^3 \cdot y \cdot y$$

$$= \boxed{4x^6y^2} \quad \text{See the pattern?}$$

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

$$\begin{array}{l} 2^{1 \cdot 2} x^{3 \cdot 2} y^{1 \cdot 2} \\ = 2^2 x^6 y^2 \end{array}$$

It is similar to
the DP, bring
the outside power
to each term's
EXPOONENT.

$$\text{Ex) } (3y^5z)^2 = 3^2 y^{10} z^2 = 9y^{10}z^2$$

$$(9p^2g^7)^2 = 81p^4g^{14}$$

$$(7b^3c^6)^3 = 7^3 b^9 c^{18}$$

$$343b^9c^{18}$$

EX 5 Pg 412

$$\left(\frac{1}{3}xy^4\right)^2 [(-6y)^2]^3$$

$$\left(\frac{1}{3}\right)^2 x^2 y^8 [36y^2]^3$$

$$\frac{1}{9} x^2 y^8 36^3 y^6$$

$$\frac{36^3}{9} x^2 y^{14}$$

$$\frac{36 \cdot 36 \cdot 36}{9} x^2 y^{14}$$

$$\frac{4 \cdot 36^2 x^2 y^{14}}{1}$$

$$\boxed{5184 x^2 y^{14}}$$

$$\begin{array}{r} 36 \\ \times 36 \\ \hline 216 \\ 108 \\ \hline 1296 \\ \times 4 \\ \hline 5184 \end{array}$$

Group Practice

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9, 10, 11, 12,

13, 14 } Area of Δ
is $\frac{1}{2}bh$

35, 36

SUMMARY OF EXPONENT RULES (SO FAR)

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Multiplication Rule $a^m \cdot a^n = a^{m+n}$
Ex) $x^4 x^5 = x^9$

Power to a Power Rule $(a^m)^n = a^{m \cdot n}$
Ex) $(x^4)^5 = x^{20}$

Group to a Power Rule $(ab)^m = a^m b^m$
Ex) $(4x^4)^2 = 16x^8$
