

6.1-6.2 Review

$$1^2 = 1 \quad 2^2 = 4 \quad 3^2 = 9 \quad 4^2 = 16 \quad 5^2 = 25$$

$$6^2 = 36 \quad 7^2 = 49 \quad 8^2 = 64 \quad 9^2 = 81 \quad 10^2 = 100$$

$$11^2 = 121 \quad 12^2 = 144 \quad 13^2 = 169 \quad 14^2 = 196 \quad 15^2 = 225$$

$$1^3 = 1 \quad 2^3 = 8 \quad 3^3 = 27 \quad 4^3 = 64 \quad 5^3 = 125$$

$$6^3 = 216 \quad 7^3 = 343 \quad 8^3 = 512$$

$$1^4 = 1 \quad 2^4 = 16 \quad 3^4 = 81 \quad 4^4 = 256 \quad 5^4 = 625$$

$$1^5 = 1 \quad 2^5 = 32$$

$$\text{ex) } 64^{\frac{1}{3}} = \sqrt[3]{64} = 4 \quad ; \quad 512^{\frac{2}{3}} = \sqrt[3]{512}^2 = 8^2 = 64$$

$$256^{\frac{3}{4}} = \sqrt[4]{256}^3 = 4^3 = 64$$

$$216^{\frac{1}{3}} + 169^{\frac{1}{2}} = \sqrt[3]{216} + \sqrt{169} = 6 + 13 = 19$$

$$(X^{\text{power}})^{\text{power}}$$

multiply power

$$X^{\text{power}} \cdot X^{\text{power}}$$

add power

$$\frac{X^{\text{power}}}{X^{\text{power}}}$$

sub. power

$$(\quad)^0 = 1$$

$$a^{\frac{m}{n}} = (n\sqrt{a})^m$$

$m \leftarrow \text{Power}$
 $n \leftarrow \text{Root}$

- power \rightarrow move

6.1 : Properties of Exponents.

$$1) (X^2)^3 = X^6$$

multiply the power !!

$$2) X^2 \cdot X^3 = X^5$$

add the power !!

$$3) \frac{X^3}{X^2} = X^1$$

sub. the power !! Big power - Small power,

Answer located on the Bigger power.

$$4) X^0 = 1$$

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

neg. power \rightarrow move !!

$$\text{Ex1)} (4x^2y^1)(2x^1y^2) = \boxed{8x^3y^3}$$

$$\text{Ex2)} x^2(\cancel{3}x^1y^1)(x^1y^4) = \boxed{3x^4y^5}$$

$$\begin{aligned} \text{Ex3)} \frac{(5x^1y^3)^2}{(6x^2)(2x^3)^3} &= \frac{5^2x^2y^6}{(6x^2)(2^3x^3)} \\ &= \frac{25x^2y^6}{(6x^2)(8x^3)} \\ &= \frac{25x^2y^6}{48x^5} \\ &= \boxed{\frac{25y^6}{48x^3}} \end{aligned}$$

$$\text{Try 1) } (4x^3y^2)(5x^{-4}y^5) = 20x^{-1}y^7 = \boxed{\frac{20y^7}{x}}$$

$$\text{Try 2) } \frac{(-9x)^2}{(x^{-3}y^2)^2} = \frac{(-9)^2x^2}{x^{-6}y^2} = \frac{81x^2}{x^{-6}y^2} = \boxed{\frac{81x^8}{y^2}}$$

$$\text{Try 3) } \frac{(6x^2)(2x^2)^3}{(x^2)^4} = \frac{(6x^2)(2^3x^6)}{x^8}$$
$$= \frac{(6x^2)(8x^6)}{x^8}$$

$$= \frac{48x^8}{x^8}$$

$$= \boxed{48}$$

$$\text{Try 4)} \frac{(4x^2y^3)^2}{(2x)(x^4y^2)^2} = \frac{4^2 x^4 y^6}{(2x)(x^8 y^2)} = \frac{16x^4 y^6}{2x^9 y^2} = \boxed{\frac{8y^4}{x^5}}$$

$$\text{Try 5)} (3xy^2)(6xy^2)^2$$

$$= (3xy^2)(36x^2y^2)$$

$$= \boxed{108x^3y^4}$$

$$\text{Try 6)} (-2a^2b)^4 (a^2b^4) = (16a^8b^4)(a^2b^4)$$

$$= \boxed{16a^{10}b^8}$$

$$\text{Try 7)} (3ab^2)(3ab^2)^2 = (3ab^2)(9a^2b^2)$$

$$= \boxed{27a^3b^4}$$

$$\text{Try 8)} \frac{(-2x^2)^3 (x^5)}{(x^{-2})^3} = \frac{(-8x^6)(x^5)}{x^{-6}} = \frac{-8x^{11}}{x^{-6}} = \boxed{-8x^{17}}$$