1.6 Exponent Laws and Order of Operations

Reminders of BEDMAS

ex. 1 $\frac{3+2}{5} = \frac{5}{5} = 1$

2. $12 + 2(2+4)$

$= 12 + 2(6)$

$= 12 + 12$

$= 24$

3. $3(5-2^3)^2 \div 3$

$= 3(5-8)^2 \div 3$

$= 3(-3)^2 \div 3$

$= 3(9) \div 3$

$= 27 \div 3 = 9$

4. $\frac{9^3 \cdot 9^5}{9} = \frac{9^8}{9} = 9^7$

Simplify Single Power → Evaluate Calculator

$= 4,782,969$

5. $(x^3y^{-2})(x^5y^4)$

$= x^3 x^5 y^{-2} y^4$

$= x^8 y^2$

6. $\dfrac{10 m^5 b^7}{5 m^2 b^{-3}}$ $7+{+3}$

$= 2 m^3 b^{10}$

7. a) $(8 a^9 b^6)^{\frac{1}{3}} = 8^{1\times\frac{1}{3}} a^{9\times\frac{1}{3}} b^{6\times\frac{1}{3}}$

$= 8^{\frac{1}{3}} a^{\frac{9}{3}} b^{\frac{6}{3}}$

$= \sqrt[3]{8}$

$= 2 a^3 b^2$

b) $(9 c^{-4} d^3)^{\frac{1}{2}}$

$= 9^{\frac{1}{2}} c^{-4\times\frac{1}{2}} d^{3\times\frac{1}{2}}$

$= 3 c^{-2} d^{\frac{3}{2}}$

positive exponents ONLY

ONLY

$$= \frac{3d^{\frac{3}{2}}}{c^2}$$

8. $\left(5^{\frac{1}{3}} \cdot 3^{-\frac{1}{2}}\right)^6$ evaluate

$$= 5^{\frac{1}{3}\times 6} \cdot 3^{-\frac{1}{2}\times 6}$$

$$= 5^2 \cdot 3^{-3}$$

$$= 25 \cdot \frac{1}{3^3}$$

$$= 25 \cdot \frac{1}{27} = \frac{25}{27}$$

9. $\dfrac{\left(m^{-3}n^2\right)^{-4}}{\left(m^2 n^{-5}\right)^2}$ Simplify positive exp. only

$$= \frac{m^{12}\,n^{-8}}{m^4\,n^{-6}}$$

$-8+6$

$= m^8 n^{-2} = \frac{m^8}{n^2}$

10. $2(6x^{-4}y^3)(5x^3y^5)$

$= 2(6)(5)(x^{-4}x^3)(y^3y^5)$

$= 60x^{-1}y^8$

$= \frac{60y^8}{x}$

P69 # 3-7, 11(2), 14(3), 21ab