

Algebraic expressions_exponents

$$416. (4a^2)^3 + (2a^3)^2 - 11a^6$$

$$64a^6 + 4a^6 - 11a^6$$

$$\boxed{57a^6}$$

$$412. \boxed{10n^3 - 10n^5 + 13n^9}$$

$$414. \boxed{15a^3b + 2a^3b = 17a^3b}$$

$$417. \frac{(3x)^3}{x^2 \cdot x^4} = \frac{27x^3}{x^6} = \boxed{27x^{-3} \text{ or } \frac{27}{x^3}}$$

$$x^0 = 1$$

418.

$$415. \frac{8xy^2}{2xy^1} = \boxed{4y^1} \quad y^1 = \frac{1}{y}$$

$$419. \frac{17a^3b^5}{428ab^6} = \frac{a^2b^3}{4}$$

$$413. \boxed{30xy + 7x^2y^2}$$

$$420. (3xy^5)^2 - 11x^2y^2(4y^4)^2$$

$$9x^2y^{10} - 11x^2y^2(16y^8)$$

$$9x^2y^{10} - 176x^2y^{10}$$

$$\boxed{-167x^2y^{10}}$$

$$407. 5x^2 + 8x^2 = \boxed{13x^2}$$

$$408. 5ab^4 - ab^4 = \boxed{4ab^4}$$

$$409. \boxed{11mn^3 + 8mn}$$

$$410. \boxed{3c^2 - 4c + 4}$$

$$411. \boxed{2a^2 + 2ax + 7x^2}$$

$$421. \frac{2(3x^2y)^2(xy)^3}{3(xy)^2} = \frac{2(9x^4y^2)(x^3y^3)}{3x^2y^2} = \frac{18x^7y^5}{3x^2y^2}$$

$$= 6x^{7-2}y^{5-2}$$

$$\boxed{6x^5y^3}$$

$$424. \frac{3x^{-2}}{x^5} - \frac{2x}{x^8} = 3x^{-7} - 2x^{-7}$$

$$= \boxed{x^{-7}}$$

$$x^2 \cdot x^4 = x^6$$

$$\boxed{3x^2 - 1x^2} = 2x^2$$

$$426. \frac{24x^3}{(2x)^2} + \frac{3x^5}{x^4} - \frac{(3ax)^2}{a^2x} = 6x^2 + 3x^{5-4} - 9a^2x^{2-1} = 6x + 3x - 9x$$

$$\boxed{0 = 0}$$

$$\text{null set } \emptyset$$

$$0x = 0 \quad \infty \text{ soln}$$

$$431. \left(\frac{2xy}{1} \cdot \frac{4}{x}\right)^2 + \frac{9y^2}{(3y)^2}$$

$$= (8y)^2 + \frac{9y^2}{9y^2}$$

$$= \boxed{64y^2 + 1}$$