

Unit 4

①

R3 Polynomials

Product Rule

13, 17

$$a) y^4 \cdot y^7 = y^{4+7} = y^{11}$$

$$b) (6z^5)(9z^3)(2z^2) = 108z^{5+3+2} = 108z^{10}$$

Power Rule

apply exponent to all bases # 23, 25, 29, 31

$$a) (5^3)^2 = 5^3 \cdot 5^3 = 5^6$$

$$b) (3^4 x^2)^3 = (3^4)^3 \cdot (x^2)^3 = 3^{12} \cdot x^6$$

$$c) \left(\frac{2^5}{b^4}\right)^3 = \frac{(2^5)^3}{(b^4)^3} = \frac{2^{15}}{b^{12}}$$

Definition a^0

Ex 3

35

$$a) 4^0 = 1$$

$$b) (-4)^0 = 1$$

Unit 4

R.3 Polynomials

(2)

term product of number and one or more variables Ex: $3x^2$, 1 , $-2x$

Like term same variables raised to same powers

Ex: $-13x^3$, $4x^3$, $-x^3$

Polynomial 1 term or sum of terms with only positive or zero integer exponents

Ex: $5x^3 - 8x^2 + 7x - 4$, $9p^5 - 3$, 6

[No variables in denominator] [no exponent fractions or negatives]

Degree of a term exponent or sum of exponents.

Ex: $3x^2$ degree 2

$3x^2y^5$ degree $2+5 = 7$

Degree polynomial greatest degree of any term

Trinomial

3 terms

Ex: $x^2 + 2x + 1$

Binomial

2 terms

Ex: $2x + 1$

Monomial

1 term

Ex: $3x^2$

R3 **Ex 5** Adding and Subtracting
Polynomials

3

$$\begin{aligned} \text{a) } & (\underbrace{2y^4} - \underbrace{3y^2} + \underline{y}) + (\underbrace{4y^4} + \underbrace{7y^2} + \underline{6y}) \\ & = \boxed{6y^4 + 4y^2 + 7y} \end{aligned}$$

$$\begin{aligned} \text{b) } & (\underbrace{-3m^3} - \underbrace{8m^2} + \underline{4}) - (\underbrace{m^3} + \underbrace{7m^2} - \underline{3}) \\ & = (-3-1)m^3 + (-8-7)m^2 + 4 - -3 \\ & = \boxed{-4m^3 - 15m^2 + 7} \end{aligned}$$

$$\begin{aligned} \text{c) } & 4(x^2 - 3x) - 5(2x^2 - 8x) \\ & = 4x^2 - 12x - 10x^2 + 40x \\ & = \boxed{-6x^2 + 28x} \end{aligned}$$