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6.1: Operations w/ Polynomials pg 333

Ex#1a) $(2a^{-2})(3a^5b^2)(c^{-2})$

$\left(\frac{2}{a^2}\right)\left(\frac{3a^5b^2}{1}\right)\left(\frac{1}{c^2}\right)$

$\frac{6a^5b^2}{a^2c^2} = \frac{6aaabb}{aacc} =$

$\frac{6ab^2}{c^2}$

$5^4 \cdot 3^5 = 3^9$

$(3^4)^5 = 3^{20}$

$\frac{3^5}{3^5} = 3^{4-5} = 3^{-1} = \frac{1}{3}$

$x^{-2} = \frac{1}{x^2}$ / $\frac{1}{x^{-3}} = x^3$

$(2xy)^3 = 2^3x^3y^3 = 8x^3y^3$

$\left(\frac{x}{y}\right)^2 = \frac{x^2}{y^2}$

$x^0 = 1$ $7^0 = 1$

b) $\frac{q^2r^4}{q^7r^3} =$

$\frac{qqrrrr}{qqqqqqqrrr} = \frac{r}{q^5}$

c) $\left(\frac{-2a^4}{b^2}\right)^3 = \frac{(-2a^4)^3}{(b^2)^3} = \frac{(-2)^3a^{12}}{b^6} = \frac{-8a^{12}}{b^6}$

Ex#2a) $\frac{1}{4}x^4y^3 - 8x^5$ yes 7th degree

2b) $\sqrt{x} + x + 4$ No

2c) $x^{-3} + 2x^{-2} + 6$

$\frac{1}{x^3} + \frac{2}{x^2} + 6$ No

2d) $x^5y + 9x^4y^3 - 2xy$

yes, 7th degree

Ex#3a) $(4x^2 - 6x + 6) - (2x^2 + 3x - 1)$

$4x^2 - 6x + 6 - 2x^2 - 3x + 1$

$2x^2 - 8x + 7$

Ex#4: $3x(2x^2 - 4x + 6)$

$6x^3 - 12x^2 + 18x$

3rd degree

4a) $\frac{4}{3}x^2(6x^2 + 9x - 12)$

$8x^4 + 12x^3 - 16x^2$

4th degree.

Ex#6: $(n^2 + 4n - 6)(n + 2)$

$n^3 + 2n^2 + 4n^2 + 8n - 6n - 12$

$n^3 + 6n^2 + 2n - 12$

$x^3 \cdot x^2 = x^5$

$(x^3)^2 = x^6$

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

$x^0 = 1$ $(2x^2y)^2 = 4x^4$

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Ex#1a) $(2a^{-2})(3a^3b^2)(c^{-2})$

$\left(\frac{2}{a^2}\right)\left(\frac{3a^3b^2}{1}\right)\left(\frac{1}{c^2}\right)$

$\frac{6a^3b^2}{a^2c^2} = \frac{6\cancel{a}\cancel{a}abb}{\cancel{a}\cancel{a}cc} = \frac{6ab^2}{c^2}$

$3^4 \cdot 3^5 = 3^9$

$(3^4)^5 = 3^{20}$

$\frac{3^4}{3^5} = 3^{4-5} = 3^{-1} = \frac{1}{3}$

$x^{-2} = \frac{1}{x^2}$ $\quad \frac{1}{x^{-3}} = x^3$

$(2xy)^3 = 2^3x^3y^3 = 8x^3y^3$

$\left(\frac{x}{y}\right)^2 = \frac{x^2}{y^2}$

$x^0 = 1 \quad 7^0 = 1$

b) $\frac{q^2r^4}{q^7r^8} = \frac{\cancel{q}\cancel{q}rrrr}{qqqqqq\cancel{r}\cancel{r}\cancel{r}\cancel{r}} = \frac{1}{q^5}$

c) $\left(\frac{-2a^4}{b^2}\right)^3 = \frac{(-2a^4)^3}{(b^2)^3} = \frac{(-2)^3a^{12}}{b^6} = \frac{-8a^{12}}{b^6}$

Ex#2a) $\frac{1}{4}x^4y^3 - 8x^5$ yes 7th degree

2b) $\sqrt{x} + x + 4$ No

2c) $x^{-3} + 2x^{-2} + 6$

$\frac{1}{x^3} + \frac{2}{x^2} + 6$ No

2d) $x^5y + 9x^4y^3 - 2xy$ (6, 7, 2) yes, 7th degree

Ex#3a) $(4x^2 - 5x + 6) - (2x^2 + 3x - 1)$

$4x^2 - 5x + 6 - 2x^2 - 3x + 1$

$2x^2 - 8x + 7$

Ex#4: $3x(2x^2 - 4x + 6)$

$6x^3 - 12x^2 + 18x$ → 3rd degree.

4A) $\frac{4}{3}x^2(6x^2 + 9x - 12)$

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Ex#6: $(n^2 + 4n - 6)(n + 2)$

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$x^3 \cdot x^2 = x^5$

$(x^3)^2 = x^6$

$x^{-2} = \frac{1}{x^2}$ $\quad \frac{1}{x^{-3}} = x^3$

$x^0 = 1 \quad (2x^2y^3)^2 = 4x^4$