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1.1 index laws

a) b^9

- b^{3+4+2}

b) a^2

- a^{5-3}

c) $15x^9$

- $5 \times 3x^{7+2}$

d) $2x$

- $2^3 x^6$
- $8x^6 \div 4x^5$

N2

a) $6x^5 - 7x^3$

- $4x^5 - 7x^3 + 2x^5$

b) $-15x^2 + 40x^3$

c) $3x^2 - 31x + 14$

- $3x^2 + 4x - 35x + 14$

N3

a) $x^6 - x^2 - x^4$

- $(x^9 - x^3) - (x^5 - x^3) - (x^7 - x^3)$

b) $3x^2 + 2x^4$

- $(12x^3 \div 4x) + (8x^7 \div 4x)$

c) $3x + 6 - 8x^7$

- $(6x^4 \div 2x^3) + (12x^3 \div 2x^3) - (16x^{10} \div 2x^3)$

N4

a) $21x^5 y^5$

b) $5x^9 y$

N5

a) $9r^2s^7$

b) $16a^{11}b^4$

- $2(64a^{12}b^5)$
- $128a^{12}b^5 \div 8ab^2$

N6

a) $a = 5$

- $2^5 = 2^a$

b) $b = 4$

- $3^4 = 3^b$

N7

$p = 4$; $q = 2$; $r = 4$

- $\frac{33x^6 - 3x^4y^4 + 27x^6}{6x^2}$
- $\frac{60x^6}{6x^2} - \frac{-3x^4y^4}{6x^2}$
- $10x^4 - \frac{x^2y^4}{2}$

N8

a) $5x$

- $\left(\sqrt[3]{125}\right)\left(x^{3 \times \frac{1}{3}}\right)$

b) $4x$

- $\frac{20}{5}x^{5/4 - 1/4}$
- $4x^{4/4} = 4x^1$

c) 1