26-3 Exponent Rules

(a) $a \cdot a = a^2$ $c^2c^7 = c\cdot c\cdot c\cdot c\cdot c\cdot c\cdot c\cdot c\cdot c = c^9$ Rule $c^2c^7 = c^{2+7} = c^9$

$e^2e^2 = e^4$ $g^9g^7 = ggggggggg\,ggggggg = g^{9+7} = g^{16}$

(b) $b^{6+3} = b^9$ $d^{5+1} = d^6$ $f^4f^8 = f^{4+8} = f^{12}$ $h^{5+5} = h^{10}$

(c) $a^{10+10} = a^{20}$ c^{58} e^{124} g^{76}

(d) $b^{600}b^{30} = b^{600+30} = b^{630}$ $d^{-5+1} = d^{-4}$ f^{2N} $h^{6/3+5/2} = h^{9/2}$

(e) $4a\cdot 4a = 4\cdot 4aa = 16a^2$ $8c^2 5c^7 = 40c^9$ $4e^4$ N^2g^{16}

(f) $4b^7 7b^4 = 4\cdot 7b^7\cdot b^4 = 28b^{11}$ $27d^7$ $3^4f^3 4^3f^8 = 81f^3 64f^8 = 5184f^{11}$

$3^{(3+1)}h^7 3^4h^5 = 3^4h^7 3^4h^5 = 81h^7 81h^5 = 6561h^{12}$

(g) $2^5y^3 3^2a = 32y^3 9a = 288y^3a$ $400c^{10}$ $G_0{}^mEt^s$ $65536g^8$

(h) $3^6b^6b^3 = 729b^9$ $100d^6$ $13824f^{12}$ $5^7h^{10} = 78125h^{10}$

(i) $3ax^2a^2x\,3 = 3\cdot 3aa^2x^2x = 9a^3x^3$ $40c^{12}x^{12}$ $10e^8x^{11}$ $11.25g^{15}x^{3.2}$

(j) $4b^8x^8$ $5d^7x^{6.5}$ $7f^{13}x^{15}$ $36h^9x^7$

dividing like bases

(a) $\frac{w^4}{w^2} = \frac{wwww}{ww} = w^2$ or $w^{4-2} = w^2$ e^2 r^6 y^2 p^4

(b) $\frac{g^5}{g^4} = \frac{ggggg}{gggg} = g^1$ $g^{5-4} = g$ t^5 $\frac{wwwxxx}{wwwxxx} = 1$ 1 b

(c) g^{14} $\frac{1}{x^{56}}$ or $x^{54-110} = x^{-56}$ $m^{45-73} = m^{-28}$ or $\frac{1}{m^{28}}$ m^{-8} or $\frac{1}{m^8}$ f^{30}

(d) $\frac{4eeeeeeee}{12ee} = \frac{e^5}{3}$ $\frac{14f^{14}}{21f^{12}} = \frac{2}{3}f^{14-12} = \frac{2}{3}f^2$ $5x^{10}$ $\frac{12}{5}k^7$ $\frac{9}{7}h$