

Exercices.

ACTIMATH P77

NOUVEL ACTIMATH P60-61

Série 2

a	a_2	a_2	a_3
	$a^3 \cdot a^4 = a^7$	$5a^3 \cdot (-a^4) = -5a^7$	$3a^2 b^5 \cdot 2ab^7 = 6a^3 b^{12}$
	$a^5 \cdot a = a^6$	$3a \cdot 2a = 6a^2$	$4a^5 \cdot 2a^3 b^2 = 8a^8 b^2$
	$3a^2 \cdot 5a^3 = 15a^5$	$-4a \cdot a^5 = -4a^6$	$-5x \cdot 2xy^3 = -10x^2 y^3$
	$4a^3 \cdot a = 4a^4$	$-7x^3 \cdot (-2x^4) = 14x^7$	$2 \cdot 3a^3 \cdot 5b^3 = 10 \cdot 3a^3 \cdot b^3 = 30a^3 b^3$
	$-2a^5 \cdot a = -2a^6$	$a \cdot (-2a) = -2a^2$	$-5a^3 b^2 \cdot 5a^5 b = -25a^{10} b^4$
b	b_2	b_2	b_3
	$(a^3)^5 = a^{15}$	$(-5a)^2 = 25a^2$	$(2x^4)^3 = 8x^{12}$
	$(b^3)^4 = b^{12}$	$(-3a)^3 = -27a^3$	$(3a^2)^2 = 9a^4$
	$(x^4)^7 = x^{28}$	$(-2a)^5 = -32a^5$	$(-4xy)^3 = -64x^3 y^3$
	$(2a)^3 = 8a^3$	$(3a^2)^5 = 243a^{10}$	$(-3a^4 b)^2 = 9a^8 b^2$
	$(3a)^4 = 81a^4$	$(2a)^4 = 16a^4$	$-(2a^3 b^2)^4 = -16a^{12} b^8$
			$(2ab^3)^3 = 8a^3 b^{15}$
			$(-2a^3 bc)^2 = 4a^6 b^2 c^2$
			$(-a^3 b^5)^6 = a^{18} b^{30}$
			$(-xy^3)^5 = -x^5 y^{15}$
			$(-ab^2)^2 = -a^2 b^4$
c	c_2	c_2	c_3
	$x^3 \cdot x = x^4$	$(-2a)^5 = -32a^5$	$-4a^3 \cdot (-3a^4) = 12a^7$
	$(4a)^6 = 16a^6$	$-7a^3 \cdot 2a = -14a^4$	$(-a^5 b^4)^2 = a^{10} b^8$
	$-5a \cdot a = -5a^2$	$(3xy^3)^4 = 81x^4 y^{12}$	$(-a^2 b^3)^5 = -a^{10} b^{15}$
	$(-3ab)^2 = 9a^2 b^2$	$(-10a^4 b)^3 = -1000a^{12} b^3$	$4a^3 \cdot (-a^4) = -4a^7$
	$(x^3)^4 = x^{12}$	$(-4ab)^3 = -64a^3 b^3$	$2xy^3 \cdot 3x^2 y = 6x^3 y^4$
			$(-b^3)^2 = b^6$
			$(a^3)^2 \cdot (b^2)^3 = a^6 b^6$
			$(-a^3)^5 = -a^{15}$
			$-(4a^3)^2 = -16a^6$
			$(-2a^3)^4 = 16a^{12}$
	c_5	c_6	c_7
	$(-5a)^3 \cdot (a^3)^2 = -125a^3 \cdot a^6 = -125a^9$	$(-a^2)^4 \cdot (-a^4)^3 = -a^{12}$	$(-2a^3 b)^3 \cdot (-3a^2 b)^4 = -8a^9 b^3 \cdot 81a^8 b^4 = -648a^{17} b^7$
	$(-5a^4 b) \cdot (-2a b^3) = 10a^5 b^4$	$(5a^3)^6 \cdot 2a^3 = 15625a^{21}$	$(3xy)^4 \cdot (-2xy)^3 = 81x^4 y^4 \cdot (-8x^3 y^3) = -648x^7 y^7$
	$(-x^3)^4 \cdot (x^2)^3 = x^{12+6} = x^{18}$	$(-5a^4)^3 + (2a^3)^2 = -125a^{12} + 4a^6 = -121a^6$	$(a^3 b)^4 \cdot (2ab)^5 = 32a^{17} b^{16}$
	$(-x^2)^6 \cdot (-x^3)^4 = -x^{12+10} = -x^{22}$	$-5a^3 + (5a)^3 = -5a^3 + 125a^3 = 120a^3$	$(3a^2 b)^4 + (-2a^4 b^2)^2 = 81a^8 b^4 + 4a^8 b^4 = 85a^8 b^4$
	$5xy^2 \cdot (5xy)^2 = 125x^3 y^4$	$(-2a^3)^4 \cdot (-a^4)^3 = -16a^{12} \cdot (-a^{12}) = 16a^{24}$	$(-2a^2 b^2)^3 - (ab)^6 = -8a^6 b^6 - a^6 b^6 = -9a^6 b^6$

Série 2: suite: P78 actimath.

NOUVEL ACTIMATH P61

$$\left(\frac{a}{b}\right)^3 = \frac{a^3}{b^3}$$

$$\left(\frac{2a^2}{b^3}\right)^3 = \frac{8a^6}{b^9}$$

$$\left(\frac{-2a^3}{64}\right)^5 = \frac{-32a^{15}}{640}$$

$$\left(\frac{2a}{3b}\right)^4 = \frac{16a^4}{81b^4}$$

$$\left(\frac{2a^3}{3b}\right)^2 = \frac{4a^6}{9b^2}$$

$$\left(\frac{-x^3}{y^2}\right)^5 = \frac{-x^{15}}{y^{10}}$$

d

$$\left(\frac{-5a}{2b}\right)^3 = \frac{-125a^3}{8b^3}$$

$$\left(\frac{3x^4}{4y}\right)^3 = \frac{27x^{12}}{64y^3}$$

$$\left(\frac{-\frac{5}{7}x^2}{\frac{1}{7}y^4}\right)^2 = \frac{25x^4}{49y^8}$$

$$\left(\frac{-a}{4b}\right)^2 = \frac{a^2}{16b^2}$$

$$\left(\frac{-2a^4}{b^3}\right)^3 = \frac{-8a^{12}}{b^9}$$

$$\left(\frac{-\frac{1}{4}ab^5}{\frac{1}{2}}\right)^3 = \frac{-\frac{1}{64}a^3b^{15}}{\frac{1}{8}}$$

$$\left(\frac{-x}{3y}\right)^3 = \frac{-x^3}{27y^3}$$

$$\left(\frac{-5a^2}{4b^3}\right)^2 = \frac{25a^4}{16b^6}$$

$$\left(\frac{-\frac{4}{5}x^4}{5y^3}\right)^3 = \frac{-\frac{64}{125}x^{12}}{y^9}$$

Série 3 NAM P61

a) $a^{-3} = \frac{1}{a^3}$

$a^{-3}b^5 = \frac{b^5}{a^3}$

$2a^{-3} = \frac{2}{a^3}$

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

$5xy^{-4} = \frac{5x}{y^4}$

b) $4a^{-2}b^5 = \frac{4b^5}{a^2}$

$ab^{-4}c^3 = \frac{ac^3}{b^4}$

$-3a^3b^{-2} = -\frac{3a^3}{b^2}$

$-a^2b^{-3} = -\frac{a^2}{b^3}$

$-a^{-5}b^2 = -\frac{b^2}{a^5}$

c) $\frac{a^3}{b^{-2}} = a^3b^2$

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

$\frac{2a^3}{5b^{-3}} = \frac{2}{5}a^3b^3$

$\frac{-a^2}{2b^{-2}} = -\frac{a^2b^2}{2}$

$\frac{3a^{-1}}{5b^{-2}} = \frac{3b^2}{5a}$

Série 4: Actimath P79 NAM P62

$4^{-2} = \frac{1}{16}$

$5^{-3} = \frac{1}{125}$

$(-2)^{-3} = -\frac{1}{8}$

$(-3)^{-2} = \frac{1}{9}$

$10^{-4} = \frac{1}{10000}$

$4^3 = 64$

$(-4)^3 = -64$

$4^{-3} = \frac{1}{64}$

$(-4)^{-3} = -\frac{1}{64}$

$-4^{-3} = -\frac{1}{64}$

$\frac{5}{3^{-2}} = 5 \cdot 9 = 45$

$\frac{2^{-3}}{5^{-2}} = \frac{25}{8}$

$\frac{(-4)^2}{2^{-4}} = \frac{16 \cdot 16}{1} = 256$

$\frac{(-3)^{-2}}{5^{-3}} = \frac{125}{9}$

$\frac{8^{-1}}{(-4)^{-3}} = \frac{-64}{8} = -8$

Séries: Actimath P79 m^{os} NAM P62.

$a^{-3} \cdot a^5 = a^2$	$2a^5 \cdot (-4a^{-2}) = -8a^3$	$(x^{-2})^3 = \frac{1}{x^6}$	$(a^3 b^{-2})^{-3} = \frac{b^6}{a^9}$
$x^{-5} \cdot x^{-3} = x^{-8} = \frac{1}{x^8}$	$-5x^{-3} \cdot x^2 = -\frac{5}{x}$	$(a^{-3})^{-4} = a^{12}$	$(ab^{-4})^2 = \frac{a^2}{b^8}$
$a^{-8} \cdot a^3 = \frac{1}{a^5}$	$b^{-5} \cdot (-3b^3) = -\frac{3b^2}{b^5} = -\frac{3}{b^3}$	$(b^3)^{-2} = \frac{1}{b^6}$	$(2a)^{-3} = \frac{1}{8a^3}$
$a^5 \cdot a^{-6} = \frac{1}{a}$	$3a^{-3} \cdot (-2a^4) = -\frac{6}{a}$	$-(a^{-4})^6 = -\frac{1}{a^{24}}$	$(3b)^{-2} = \frac{1}{9b^2}$
$x^4 \cdot x^4 = 1$	$a^{-3} \cdot 2a^{-2} \cdot a^5 = 2a$	$(y^{-7})^5 = \frac{1}{y^{35}}$	$(c^{-3})^{-2} = c^6$

$(3a^{-2})^2 = \frac{9}{a^4}$	$(-3a^2 b^3)^{-3} = -\frac{1}{27a^6 b^9}$	$\left(\frac{a^{-3}}{b^2}\right)^5 = \frac{a^{-15}}{b^{10}} = \frac{1}{a^{15} b^{10}}$
$(5x^{-1})^{-3} = \frac{x^3}{125}$	$(a^{-3} b^5)^{-2} = \frac{a^6}{b^{10}}$	$\left(\frac{a^3}{b^{-5}}\right)^2 = a^6 b^{10}$
$(2a^{-3} b^4)^3 = \frac{8b^{12}}{a^9}$	$(-4a^{-4} b^5)^{-3} = -\frac{a^{12}}{64b^{15}}$	$\left(\frac{5a^{-4}}{b^{-3}}\right)^{-2} = \frac{a^8}{25b^6}$
$(4a^2 b^{-4})^{-2} = \frac{b^8}{16a^4}$	$(-3a^2 b^{-3})^3 = -27 \frac{a^6}{b^9}$	$\left(\frac{-2a^{-4}}{b^{-1}}\right)^{-3} = -\frac{a^{12} b^3}{8}$
$(-3a^4)^{-2} = \frac{1}{9a^8}$	$-(2a^{-2})^{-3} = -\frac{a^6}{8}$	$\left(\frac{2a}{b}\right)^{-3} = \frac{b^3}{8a^3}$

NAM P62.

Série 6

$a^{-4} \cdot a^{-2} = a^{-6}$	$(a^{-3})^{-3} = a^9$	$(-a^4)^{-3} = -a^{-6}$
$a^6 \cdot a^{-5} = a^{-3}$	$(5a^4)^6 \cdot 3a^{-6} = 75a^{-2}$	$(-a^3)^{-2} = \frac{1}{a^{-6}}$
$(a^{-4})^6 = a^{-24}$	$(3a)^{-2} = \frac{1}{9a^2}$	$(-2a^{-4})^3 = -8a^{-12}$
$(a^{-3})^{-2} = a^6$	$3a \cdot (-4a^6) = -12a^7$	$(5a^{-4})^{-2} = \frac{1}{25} a^8$

Série 7 NAM P62.

$x^3 \cdot x^{-8} = \frac{1}{x^5}$	$\left(\frac{4x^3}{y^{-2}}\right)^3 = 64x^9 y^6$	$(-a^3 b^{-2})^{-2} = \frac{b^4}{a^6}$
$(a^{-3} b^4)^{-3} = \frac{a^9}{b^{12}}$	$\frac{3a^{-2}}{5a^7} = \frac{3}{5a^9}$	$(-3xy^{-4})^{-2} = \frac{-y^8}{9x}$
$\left(\frac{a^{-3}}{b^7}\right)^{-2} = a^6 b^{14}$	$(2a^{-3} b^4)^{-4} = \frac{a^{12}}{16b^8}$	$2a^3 \cdot (-3a^4) = -6a^7$
$(3a^{-2})^{-4} = \frac{a^8}{81}$	$\frac{-5a^{-7}}{4a^{-1}} = -\frac{5}{4a^6}$	$(-2a^{-3} b^{-4})^{-3} = -\frac{a^9 b^{12}}{8}$
$-5a \cdot (-3a^{-4}) = \frac{15}{a^3}$	$-(-x^5)^{-4} = \frac{-1}{x^{20}}$	$\left(\frac{a^{-1} b}{3b^{-2}}\right)^{-2} = \frac{9a^2}{b^6}$