

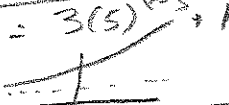




		Domaine	Codomaine	V. initiale	Variation	Eq. Asymptote
1. a)	$y_1 = 3\left(\frac{1}{5}\right)^x$ 	\mathbb{R}	$]0, +\infty[$	3	décroissante sur \mathbb{R}	$y = 0$
b)	$y_2 = 2,5^x$ 	\mathbb{R}	$]0, +\infty[$	1	croissant sur \mathbb{R}	$y = 0$
c)	$y_3 = 3(5)^{x-3} + 1$ 	\mathbb{R}	$]1, +\infty[$	4	croissant sur \mathbb{R}	$y = 1$
f)	$y_4 = 3000(0,95)^{x/6}$ $y_5 = 3000(8,9915)^x$ 	\mathbb{R}	$]0, +\infty[$	3000	décroissant sur \mathbb{R}	$y = 0$

3. a) $F(x) = 2(0,2)^x$
décroissante ($B < 1, a > 0$)

c) $h(x) = -2(3^x) + 5$
décroissante ($B > 1, a < 0$)


5. a) $y = 2, (0,4), (1,8)$
 $K = 2$
 $a + K = 4$
 $a = 2$
 $y = 2B^x + 2$
 $8 = 2B^1 + 2$
 $6 = 2B$
 $B = 3$

$y = 2(3)^x + 2$

b) $y = -2, (-1,3), (0,23)$
 $K = -2$
 $a + K = 23$
 $a - 2 = 23$
 $a = 25$
 $y = 25B^x - 2$
 $3 = 25 \cdot B^{-1} - 2$
 $5 = 25B^{-1}$
 $\frac{1}{5} = B^{-1}$

$B = 5$
 $y = 25(5)^x - 2$

c) $y = 1$, $(0, -24)$, $(1, -4)$
 $K = 1$ $y = -25 B^x + 1$
 $a + K = -24$ $-4 = -25 B^1 + 1$
 $a + 1 = -24$ $-5 = -25 B$
 $a = -25$ $B = 1/5$
 $y = -25(1/5)^x + 1$

d) $y = -8$, $(0, 24)$, $(2, 0)$
 $K = -8$ $y = 32 B^x - 8$
 $a + K = 24$ $0 = 32 B^2 - 8$
 $a - 8 = 24$ $8 = 32 B^2$
 $a = 32$ $\frac{1}{4} = B^2$
 $B = \pm 1/2$, mais $B > 0$
 $y = 32(1/2)^x - 8$

e) $y = -1$, $(0, 0.5)$, $(2, 5)$
 $K = -1$ $y = 1.5 B^x - 1$
 $a + K = 0.5$ $5 = 1.5 B^2 - 1$
 $a = 1.5$ $6 = 1.5 B^2$
 $4 = B^2$
 $B = \pm 2$, $B > 0$
 $y = 1.5(2)^x - 1$

f) $y = -8$, $(0, -40)$, $(2, -16)$
 $K = -8$ $y = -32 B^x - 8$
 $a + K = -40$ $-16 = -32 B^2 - 8$
 $a = -32$ $-8 = -32 B^2$
 $\frac{-8}{-32} = \frac{-32 B^2}{-32}$
 $1/4 = B^2$
 $B = \pm 1/2$, $B > 0$
 $y = -32(1/2)^x - 8$

6. $y = a c^x$

a) 1) $(1, 24)$ $(4, 5184)$
 $5184 = a c^4$ $24 = a c$
 $\frac{5184}{24} = \frac{a c^4}{a c}$
 $c^3 = 216$
 $c = 6$
 $24 = a(6)$
 $a = 4$
 $y = 4(6)^x$

2) $(3, 10,125)$ $(-1, 2)$
 $10,125 = a c^3$ $2 = a c^{-1}$
 $\frac{10,125}{2} = \frac{a c^3}{a c^{-1}}$
 $\sqrt[4]{c^4} = \sqrt[4]{5,0625}$
 $c = \pm 1,5$, $c > 0$
 $10,125 = a(1,5)^3$
 $a = 3$
 $y = 3(1,5)^x$

$$3) (4, -81), (7, -2187)$$

$$-81 = ac^4, \quad -2187 = ac^7$$

$$\frac{-2187}{-81} = \frac{ac^7}{ac^4}$$

$$27 = c^3$$

$$c = 3$$

$$-81 = a(3)^4$$

$$a = -1$$

$$y = -(3)^x$$

$$4) (3, 16), (2, 0.5)$$

$$0.5 = ac^2, \quad 16 = ac^{-3}$$

$$\frac{0.5}{16} = \frac{ac^2}{ac^{-3}}$$

$$0.5 = a(0.5)^2$$

$$\frac{0.5}{0.25} = a$$

$$0.03125 = c^5$$

$$c = 0.5$$

$$a = 2$$

$$y = 2(0.5)^x$$

$$b) y = ac^x + k$$

$$1) y = 7, (1, 13), (4, 55)$$

$$y = ac^x + 7$$

$$13 = ac^1 + 7, \quad 55 = ac^4 + 7$$

$$6 = ac^1, \quad 48 = ac^4$$

$$\frac{48}{6} = \frac{ac^4}{ac}$$

$$8 = c^3$$

$$c = 2$$

$$13 = a(2) + 7$$

$$6 = 2a$$

$$3 = a$$

$$y = 3(2)^x + 7$$

$$2) y = -15, (3, 1235), (-1, -13)$$

$$y = ac^x - 15$$

$$-13 = ac^{-1} - 15$$

$$1235 = ac^3 - 15$$

$$2 = ac^{-1}$$

$$1250 = ac^3$$

$$\frac{1250}{2} = \frac{ac^3}{ac^{-1}}$$

$$2 = a \cdot 5^{-1}$$

$$2 = a \left(\frac{1}{5}\right)$$

$$625 = c^4$$

$$50 = a$$

$$c = 5$$

$$y = 50(5)^x - 15$$

$$3) y = 300000, (7, 5300000), (6, 800000)$$

$$y = ac^x + 300000$$

$$5300000 = ac^7 + 300000$$

$$5000000 = ac^7, \quad 800000 = ac^6 + 300000$$

$$500000 = ac^6$$

$$\frac{5000000}{500000} = \frac{ac^7}{ac^6}$$

$$c = 10$$

$$3000000 = a(10)^6 + 300000$$

$$500000 = a(1000000)$$

$$a = \frac{1}{2}$$

$$y = \frac{1}{2}(10)^x + 300000$$

$$4) y = -5, (5, 3067), (0, -2)$$

$$y = ac^x - 5$$

$$3067 = ac^5 - 5$$

$$-2 = ac^0 - 5$$

$$y = 3(4)^x - 5$$

$$3072 = ac^5$$

$$3 = a$$

$$\frac{3072}{3} = \frac{(3)c^5}{3}$$

$$1024 = c^5$$

$$c = 4$$

$$10. C = 5400$$

$$i = 0,036$$

$$n = 10$$

$$M = 7$$

$$M = 5400(1 + 0.036)^{10}$$

$$M = 7691,15 \text{ \$}$$

$$13. T = 19,5(0,65)^{t/10} - 10,5$$

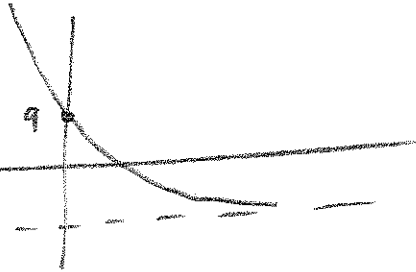
$$a + k = 9$$

b)

$$1) y = -10,5$$

2) Température minimale du congélateur.

a)



$$c)] 10,5, \infty[$$

$$d) T = 19,5(0,65)^{t/10} - 10,5$$

$$T = 9^\circ\text{C}$$

16.

$$V = C(1,005)^{t/12}$$

$$V = C(1,005)^{3t}$$

$$17. Q = 2000(0,95)^x$$

$$Q = 2000(0,95)^{10}$$

$$Q = 1197$$

18.

T : temps écoulé entre 2 cigarettes

π : nombre de jours écoulés depuis début régime.

$$a) T(x) = 1 (1,02)^x$$

$$b) 1) T(7) = (1,02)^7$$

$$= 1,15$$

$$0,15h \rightarrow 0,15 \times 60$$

$$= 9$$

1h 09 minutes

$$2) T(30) = (1,02)^{30}$$

$$= 1,81$$

$$0,81h \rightarrow 0,81 \times 60$$

$$49 \text{ min.}$$

1h 49 min

$$3) T(150) = (1,02)^{150}$$

$$= 19,5$$

$$0,5h \rightarrow 30 \text{ min.}$$

$$c) 24 = (1,02)^x$$

$$\log 24 = \log 1,02^x$$

$$\log 24 = x \log 1,02$$

$$x = \frac{\log 24}{\log 1,02}$$

$$x = 160,5$$

160,5 jours.