

Problemes Supplementaire Fts EXP-Log.

No1

$$\left(\frac{1}{32}\right)^{-2x+7} \cdot 8^{4x-5} = \frac{64^{x+2}}{16^{3x-1}}$$

$$(2^{-5})^{-2x+7} \cdot (2^3)^{4x-5} = \frac{(2^6)^{x+2}}{(2^4)^{3x-1}}$$

$$2^{10x-35} \cdot 2^{12x-15} = \frac{2^{6x+12}}{2^{12x-4}}$$

$$2^{22x-50} = 2^{-6x+16}$$

$$22x - 50 = -6x + 16$$

$$28x = 66$$

$$\boxed{x = \frac{2,36}{1}}$$

No2

$$\log_3(x-1) = 2 + \log_3(2x-5)$$

$$\begin{array}{l|l} x-1 > 0 & 2x-5 > 0 \\ \hline x > 1 & x > 2,5 \end{array}$$

$$\log_3(x-1) - \log_3(2x-5) = 2$$

$$\log_3\left(\frac{x-1}{2x-5}\right) = 2 \Rightarrow 3^2 = \frac{x-1}{2x-5}$$

$$9 = \frac{x-1}{2x-5}$$

$$18x - 45 = x - 1$$

$$17x = 44$$

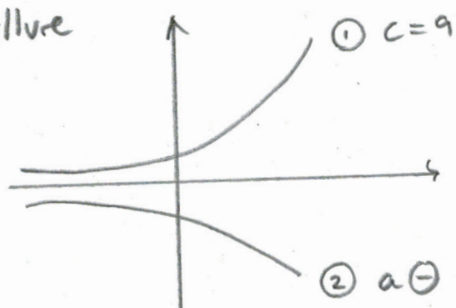
$$\boxed{x = \frac{44}{17}}$$

No 3 a) $f(x) = -5 \left(\frac{1}{3}\right)^{-2x+500} + 4$

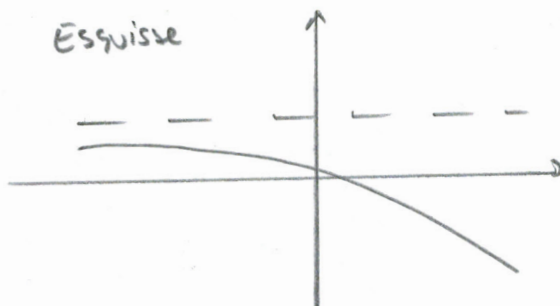
$$f(x) = -5 \left(\frac{1}{3}\right)^{-2(x-250)} + 4$$

$$f(x) = -5 \cdot 9^{x-250} + 4$$

Allve

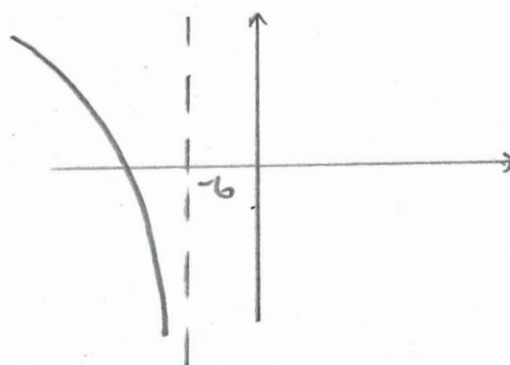
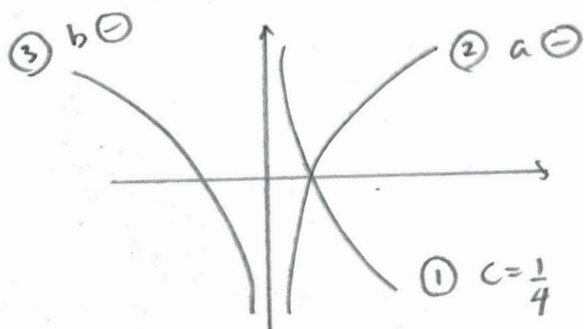


Esquisse



b) $g(x) = -7 \log_{\frac{1}{4}}(-5x-30) + 69$

$$g(x) = -7 \log_{\frac{1}{4}}(-5(x+6)) + 69$$



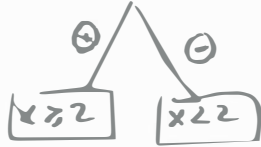
No 4 a) $0 = -5|-6x+12|+150$

$$0 = -5|-6(x-2)|+150$$

$$0 = -30|x-2|+150$$

$$-150 = -30|x-2|$$

$$5 = |x-2|$$



$$x-2=5 \quad x-2=-5$$

$$x=7$$

$$x=-3$$

b) $0 = 4|10-2x|+24$

$$0 = 4|-2x+10|+24$$

$$0 = 4|-2(x-5)|+24$$

$$0 = 8|x-5|+24$$

$$3 = |x-5|$$



$$x-5=3 \quad x-5=-3$$

$$x=8$$

$$x=2$$

No 5 a) $0 = -10 \cdot e^{3x-8} + 40$

$$4 = e^{3x-8}$$

$$3x-8 = \log_e 4 = \ln 4$$



$$x = 3,13$$

b) $0 = 5 \ln(2x-9) - 35$

$$7 = \ln(2x-9) \quad \text{ou} \quad 7 = \log_e(2x-9)$$

↓ Exp

$$e^7 = 2x-9$$

$$1096,63 = 2x-9$$



No 6 a) $V_f = 200000(1,015)^x = 269.371 \$$



$$6\% \rightarrow 12 \text{ mois}$$

$$x \rightarrow 3 \text{ mois} \quad x = 1,52$$

→ 20 "3mois" dans 5 ans $x = 552,82$

b) $100000 = 200000(1,015)^x \quad x: \text{nb de 3mois}$

$$5 = 1,015^x$$

$$x = \log_{1,015} 5 = 108,1 \text{ "3mois"}$$

$$\rightarrow \div 4 = 27,02 \text{ ans.}$$

No 7 $4 = 8 \cdot 0,97^x$

$$\frac{1}{2} = 0,97^x \Rightarrow x = \log_{0,97} 0,5 = 22,76 \text{ ans}$$

No 8 $V_f = 200 \cdot \left(\frac{9}{10}\right)^2 = 162 \text{ lbs}$ (si perd $\frac{1}{10}$, il en conserve le $\frac{9}{10}$ aux 6mois)