

$$1. a) \frac{6 \cdot (3)^{2x-1}}{6} = \frac{54}{6}$$

$$3^{2x-1} = 9$$

$$3^{2x-1} = 3^2$$

$$2x-1 = 2$$

$$2x = 3$$

$$x = 3/2$$

$$c) \left(\frac{9}{4}\right)^x = \left(\frac{27}{8}\right)^{5x+2} \cdot \left(\frac{2}{3}\right)$$

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

$$2x = 3(5x+2) - 1$$

$$2x = 15x + 6 - 1$$

$$-5 = 13x$$

$$x = -5/13$$

$$b) 5^{7-3x} \cdot 12^{-12} = 5^{17}$$

$$5^{7-3x} = 5^1$$

$$7-3x = 1$$

$$6 = 3x$$

$$x = 2$$

$$d) \frac{3^{x+1}}{81^{2x-1}} = 9^{x^2}$$

$$\frac{3^{x+1}}{3^{4x-4}} = 3^{2x^2}$$

$$3^{-7x+5} = 3^{2x^2}$$

$$-7x+5 = 2x^2$$

$$0 = 2x^2 + 7x - 5$$

$$x = \frac{-7 \pm \sqrt{7^2 - 4(2)(-5)}}{2(2)}$$

$$x = \frac{-7 \pm \sqrt{89}}{4}$$

$$x \approx 0,61 \quad x \approx -4,11$$

$$2. P_0 = 10000$$

$$P(t) = 40000$$

$$e = 40\%$$

$$v = e$$

$$d = ?$$

$$P(t) = P_0 \cdot v^{t/d}$$

$$\frac{40000}{10000} = \frac{10000 \cdot 2}{10000}$$

$$4 = 2^{40/d}$$

$$2^2 = 2^{40/d}$$

$$2 = \frac{40}{d}$$

$$d = \frac{40}{2}$$

$$d = 20 \text{ minutes}$$

$$3. \quad 12,5 = 100 \left(\frac{1}{2}\right)^{\frac{30}{d}}$$

$$0,125 = \left(\frac{1}{2}\right)^{\frac{30}{d}}$$

$$\frac{1}{8} = \left(\frac{1}{2}\right)^{\frac{30}{d}}$$

$$\left(\frac{1}{2}\right)^3 = \left(\frac{1}{2}\right)^{\frac{30}{d}}$$

$$3 = \frac{30}{d}$$

$$d = 10 \text{ heures}$$

$$4. \quad M = C(1+i)^n$$

$$\frac{7300,50}{5000} = \frac{5000}{5000} \left(1 + \frac{0,2}{2}\right)^n$$

essai  
erreur

$$\left\{ \begin{array}{l} 1,4641 = (1,1)^n \\ (1,1)^4 = (1,1)^n \end{array} \right.$$

$n = 4$  semestres  $\rightarrow$  donc 2 ans.

$$\underline{5.} \quad \frac{\sqrt{2}}{2} = 1 \cdot \left(\frac{1}{2}\right)^{\frac{8}{d}}$$

$$\frac{1}{\sqrt{2}} = \left(\frac{1}{2}\right)^{\frac{8}{d}}$$

$$\left(\frac{1}{2}\right)^{\frac{1}{2}} = \left(\frac{1}{2}\right)^{\frac{8}{d}}$$

$$\frac{1}{2} = \frac{8}{d}$$

$$d = 16 \text{ jours.}$$