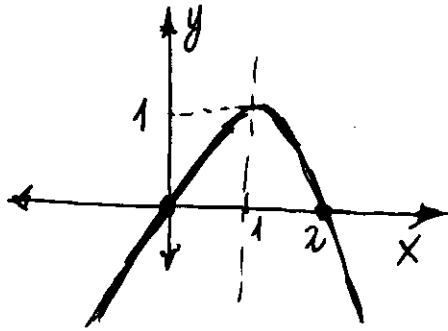


Corrección 1er control 1ª evaluación Matemáticas 2 - 2º Bachillerato

10-10-18

1.  $f(x) = 1 - x^2 + 2x - 1 = 2x - x^2$

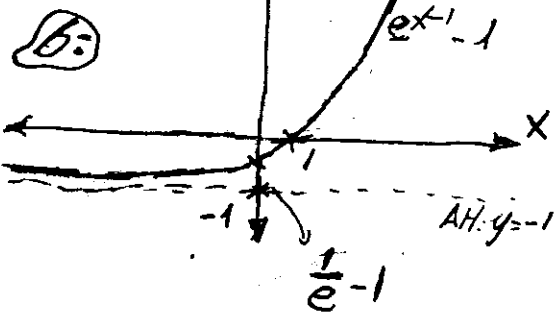
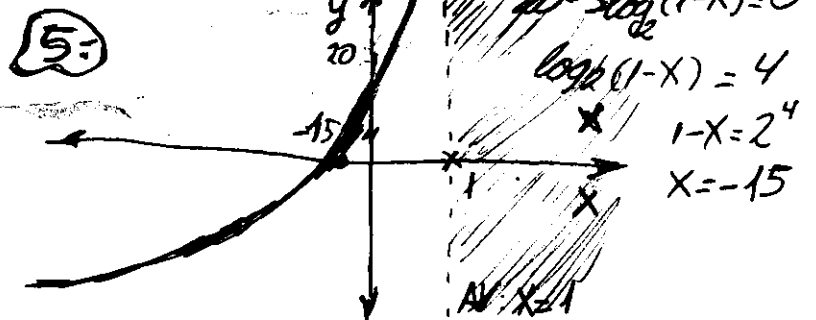
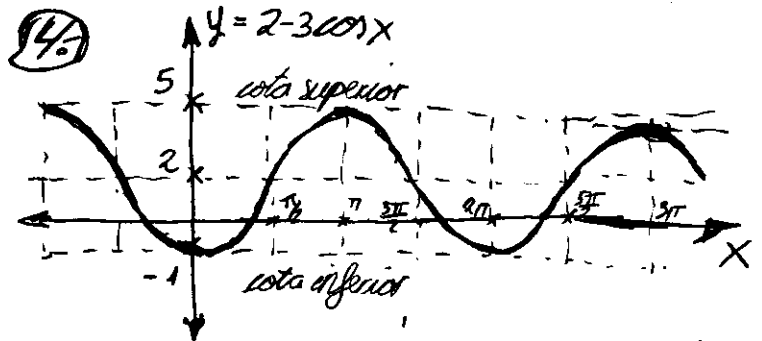
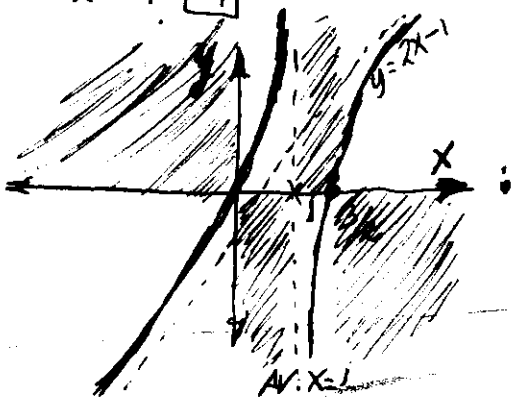


2. 
$$\begin{array}{c|ccc} 1 & 1 & 3 & -5 & 1 \\ & & 1 & 4 & -1 \\ \hline & & 1 & 4 & 1 & 0 \end{array} \rightarrow \frac{-4 \pm \sqrt{16+4}}{2} = -2 \pm \sqrt{5}$$



3.  $f(x) = \frac{2x(x-1)-x}{x-1} = \frac{2x^2-3x}{x-1}$

$$\begin{array}{c|ccc} 1 & 2 & -3 & 0 \\ & & 2 & -1 \\ \hline & & 2 & -1 & -1 \end{array} \rightarrow \text{AO: } y = 2x - 1$$



7.  $\lim_{x \rightarrow \infty} \left(2 + \frac{1}{x}\right)^{-x} = 2^{-\infty} = \frac{1}{2^{\infty}} = \frac{1}{\infty} = 0$

8.  $\lim_{x \rightarrow 1} \frac{\sin(x^2-1)}{x-1} \stackrel{\text{Inf}}{=} \lim_{x \rightarrow 1} \frac{x^2-1}{x-1} = \lim_{x \rightarrow 1} x+1 = 2$

$$9) \lim_{x \rightarrow 3} 3x - \sqrt{4x^2 - x} \cdot \frac{3x + \sqrt{4x^2 - x}}{3x + \sqrt{4x^2 - x}} = \lim_{x \rightarrow \infty} \frac{9x^2 - 4x^2 + x}{3x + \sqrt{4x^2 - x}} = \lim_{x \rightarrow \infty} \frac{5x^2 + x}{3x + \sqrt{4x^2 - x}}$$

$$= \lim_{x \rightarrow \infty} \frac{5 + \frac{1}{x}}{\frac{3}{x} + \sqrt{\frac{4}{x} - \frac{1}{x^3}}} = \frac{5+0}{0+0} = \frac{5}{0} = \boxed{\infty}$$

$$10) \lim_{x \rightarrow \infty} \left(\frac{x}{x+1}\right)^{2x} \stackrel{1^\infty}{=} \lim_{x \rightarrow \infty} e^{2x \left(\frac{x}{x+1} - 1\right)} = e^{\lim_{x \rightarrow \infty} \frac{-2x}{x+1}} = e^{-2} = \boxed{1/e^2}$$

$$11) \lim_{x \rightarrow \infty} 2x - 5x^3 = \lim_{x \rightarrow \infty} -5(\infty^3) = \boxed{-\infty}$$

$$12) \lim_{x \rightarrow \infty} \sqrt{\frac{2e^{-x}}{x} + 9} = \sqrt{\frac{0}{\infty} + 9} = \sqrt{9} = \boxed{3}$$

$$13) \lim_{x \rightarrow 3} \frac{\ln(x^2 - 9)}{\frac{1}{x-3}} \stackrel{0/0}{=} \lim_{x \rightarrow 3} \frac{\frac{2x}{x^2 - 9}}{\frac{-1}{(x-3)^2}} = \lim_{x \rightarrow 3} \frac{2x(x-3)^2}{x^2 - 9} = \lim_{x \rightarrow 3} \frac{2x(x-3)}{x+3} = \boxed{0}$$

$$14) f'(x) = \frac{1}{\pi} \frac{-\sin x}{4^4 \sqrt{\cos^3 x}}$$

$$15) f'(x) = 0 - 5 \cdot 3(x^4 - 2x^2 + e)^2 (4x^3 - 4x) = -60(x^3 - x)(x^4 - 2x^2 + e)^2$$

$$16) f'(x) = \sin^2 x + 2x \sin x \cos x = \sin^2 x + x \sin 2x$$

$$17) \frac{2x}{\sqrt{1-x^4}} (3-2^x) + 2^x \ln 2 \cdot \cos x \sin x^2$$

$$f'(x) = \frac{(3-2^x) + 2^x \ln 2 \cdot \cos x \sin x^2}{(3-2^x)^2}$$

$$18) f'(x) = \frac{1}{\cos^2 x \sqrt{\cos x}}$$

$$19) f(x) = \operatorname{arctg}^2 x \rightarrow f'(x) = 2 \operatorname{arctg} x \cdot \frac{1}{1+x^2}$$

$$20) f(x) = \ln(x^{-1/4})^{1/2} = -\frac{1}{4} \ln x \rightarrow f'(x) = -\frac{1}{4x}$$