COLEGIO ALMA'S
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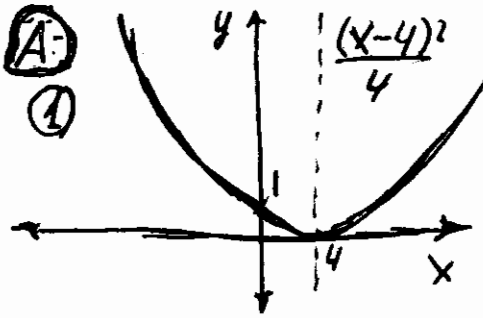
Corrección Recuperación 2ª Eva. Matemáticas C.CC.SS. I 1º Bach. Letras

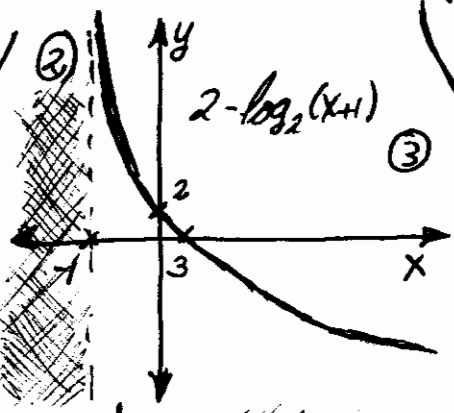
06-04-2018

A:

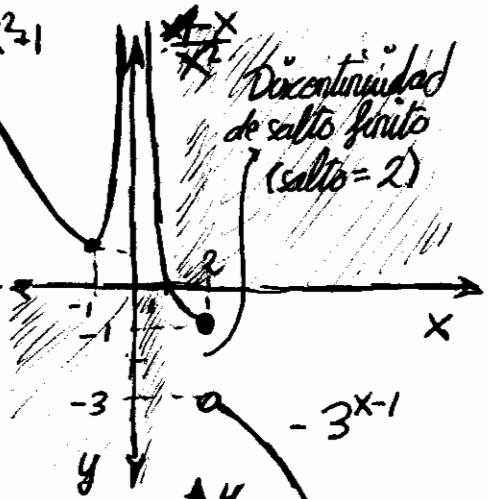
1) $\frac{(x-4)^2}{4}$



2) $2-\log_2(x+1)$

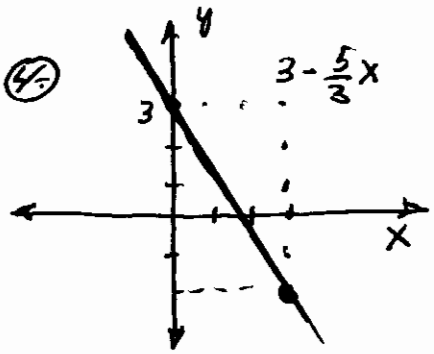


3) $\frac{x^2+1}{x}$ Discontinuidad de salto finito (salto = 2)

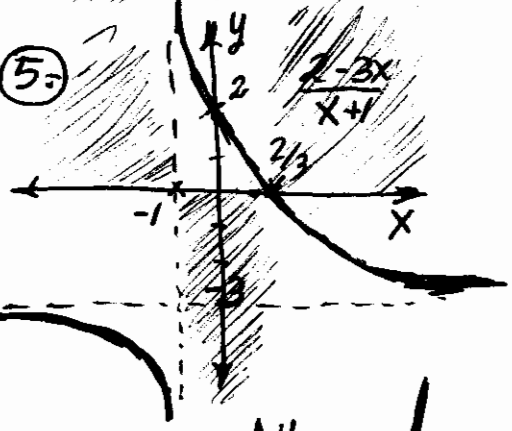


-3^{x-1}

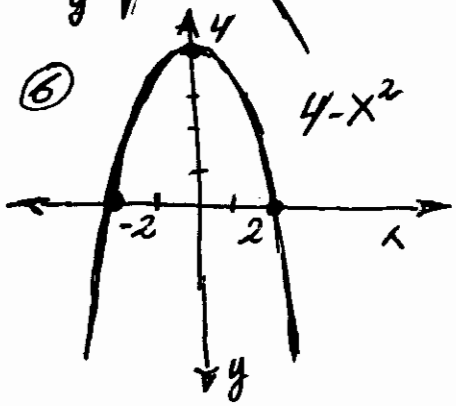
4) $3-\frac{5}{3}x$



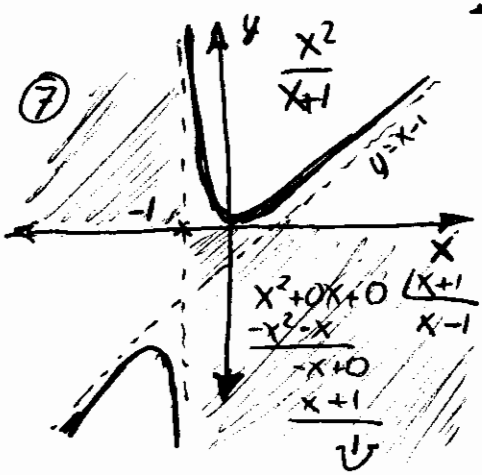
5) $\frac{2-3x}{x+1}$



6) $4-x^2$

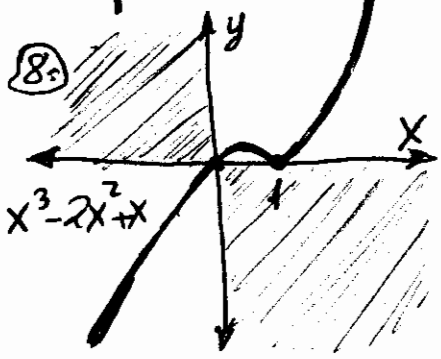


7) $\frac{x^2}{x+1}$ $y=x-1$



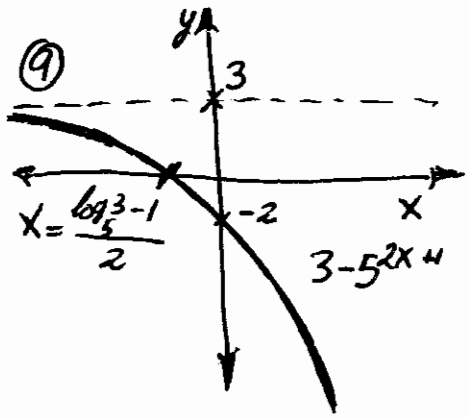
x^2+0x+0 | $x+1$
$-x^2-x$ | $x-1$
$-x+0$
$x+1$
1

8)



x^3-2x^2+x

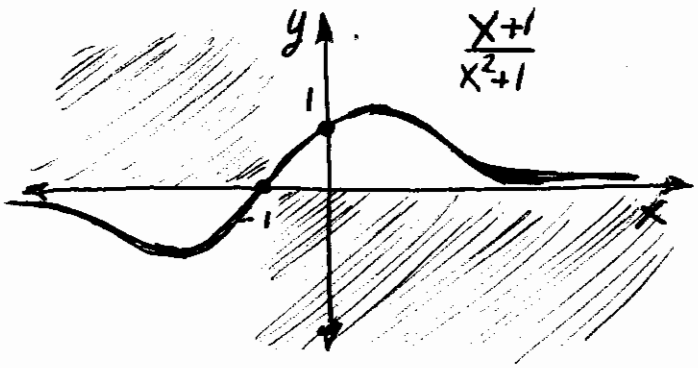
9)



$x=\frac{\log_5 3-1}{2}$

$3-5^{2x+1}$

10)



$\frac{x+1}{x^2+1}$

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B

1. $y = \dfrac{\sqrt{x^2+1}}{(x+1)^2} \longrightarrow y' = \dfrac{\frac{x(x+1)^2 - 2(x+1)\sqrt{x^2+1}}{\sqrt{x^2+1}}}{(x+1)^4}$

2. $y' = 1\cdot\sqrt{2x-x^2} + x\cdot\dfrac{2-2x}{2\sqrt{2x-x^2}}$

3. $y' = \dfrac{1-2x}{4\sqrt[4]{(2x-x^2)^3}}$

4. $\ln y = x\ln(x+x^2) \longrightarrow y' = \left[1\cdot\ln(x+x^2) + \dfrac{x(1+2x)}{x+x^2}\right](x+x^2)^x$

5. $y' = 3\cdot 2^{1+3x}\ln 2$

6. $y' = \dfrac{3x^2}{x^3+1}$

7. $y' = \dfrac{3(x+2)^2 - 3x\cdot 2(x+2)}{(x+2)^4} = \dfrac{3(x+2)-6x}{(x+2)^3} = \dfrac{-3x+6}{(x+2)^3}$

8. $y' = 3x^2\sqrt{x} + \dfrac{x^3+1}{2\sqrt{x}}$

9. $y' = \dfrac{-1}{x^2} - 2x + \dfrac{1}{x} - 1'5^x \ln 1'5.$

10. $y' = \dfrac{4}{x} - \dfrac{1}{x+1}$

6. Límites

1. $\lim_{x\to-\infty} \dfrac{x^3-2x}{3-x^2+3x^3} \overset{\text{L'H}}{\underset{\frac{\infty}{\infty}}{=}} \lim_{x\to-\infty} \dfrac{3x^2-2}{-2x+9x^1} \overset{\text{L'H}}{\underset{\frac{\infty}{\infty}}{=}} \lim_{x\to-\infty} \dfrac{6x}{-2+18x} \overset{\text{L'H}}{\underset{\frac{\infty}{\infty}}{=}} \dfrac{6}{18} = \boxed{\dfrac{1}{3}}$

2. $\lim_{x\to-\infty} \dfrac{2e^x - x}{3x-1} \overset{\text{L'H}}{\underset{\frac{\infty}{\infty}}{=}} \lim_{x\to-\infty} \dfrac{2e^x}{3} = \dfrac{\infty}{3} = \boxed{\infty}$

3. $\lim_{x\to 0} \dfrac{x+1}{x^2} = \dfrac{1}{+0} = \boxed{+\infty}$

4. $\lim_{x\to 1} \dfrac{3x^2-3}{x^2+3x+2} = \dfrac{0}{6} = \boxed{0}$

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⑤ $\lim_{x \to 1^+} \ln(x^4-1) - x = -\infty - 1 = \boxed{-\infty}$

⑥ $\lim_{x \to 3} \frac{\sqrt{x^2-9}}{\ln(x-3)} = \frac{0}{-\infty} = \boxed{0}$

⑦ $\lim_{x \to 1} (x-1)^2 \ln x = 0 \cdot 0 = \boxed{0}$

⑧ $\lim_{x \to \infty} \left(\frac{x^2}{3x^2-1}\right)^x = \left(\frac{1}{3}\right)^{\infty} = \boxed{0}$

⑨ $\lim_{x \to \infty} \sqrt{x-2} - \sqrt{x-1} \; \frac{\sqrt{x-2}+\sqrt{x-1}}{\sqrt{x-2}+\sqrt{x-1}} = \lim_{x \to \infty} \frac{-1}{\sqrt{x-2}+\sqrt{x-1}} = \frac{-1}{\infty - \infty} = \boxed{0}$

⑩ $\lim_{x \to \infty} \left(\frac{x+3}{x+1}\right)^{x-1} \overset{1^{\infty}}{=} e^{\lim_{x \to \infty} (x-1)\left(\frac{x+3}{x+1}-1\right)} = e^{\lim_{x \to \infty} \frac{2x-2}{x+1}} = \boxed{e^2}$