COM

24. Sea

E = –

Luego, la

a) $\frac{\sqrt{12}+}{}$

b) $\frac{\sqrt{15}+}{}$

c) $\frac{\sqrt{12}-}{}$

d) $\frac{\sqrt{15}-}{}$

e) $\frac{\sqrt{12}-}{}$

25. El f
racio

es:

A)

B)

C)

D)

E)

26. Ha

a)
d)



(25) $\log(2x-1)^n + \log(x-1)^{10^{\log n}} = n$

$n\log(2x-1) + \underbrace{10^{\log n}}_{\text{Por propiedad} = n} \log(x-1) = n$

$n\log(2x-1) + n\log(x-1) = n$

$n\left(\log(2x-1) + \log(x-1)\right) = n$

$\log(2x-1) + \log(x-1) = \cancel{\frac{n}{n}}\,1$

$\log(2x-1)(x-1) = 1$

$(2x-1)(x-1) = 10$

$2x^2 - 2x - x + 1 = 10$

$2x^2 - 3x - 9 = 0$

$2x \qquad 3$

$x \qquad -3$

$(2x+3)(x-3) = 0$

$x = -\frac{3}{2} \wedge x = 3$

Reemplazando:

* Para $x = -3/2$

$(2x-1) \rightarrow 2\left(\frac{-3}{2}\right) - 1 = -4$

No cumple.

* Para $x = 3$

$(2x-1) \rightarrow 2(3) - 1 = \underline{5 > 0}$

∴ Para $x = 3$ es la única solución válida.

$(x+a)(x+b) = x^2+(a+b)x+ab$

# COMPENDIO

a. $[-5,-2]$

b. $\left[\frac{-4}{3},\frac{-14}{9}\right]$

c. $[2,5]$

d. $\left[\frac{4}{3},\frac{14}{9}\right]$

e. $[8,10]$

(21) $\log_8 \sqrt{x+14} + \log_8 \sqrt{x+7} - \log_8 \frac{6}{5} = 1$

$\log \frac{(\sqrt{x+14})(\sqrt{x+7})(5)}{6} =$

$\frac{\sqrt{(x^2+21x+98)(5)}}{6} = \cancel{8} \times 2$

$x^2+21x+98=144$

$x^2+21x-46=0$

$x \quad +23$

$x \quad -2$

$(x+23)(x-2)=0$

$x=-23 \wedge x=2$

REEMPLAZANDO:

PARA $x=-23$

$\sqrt{-23+14} = \underbrace{\sqrt{-9}}_{\text{NO} \in \mathbb{R}}$

$\therefore$ El único valor es 2

2. Resolver :
Si

$$\boxed{7 \le \frac{1}{2x-3} < 8}$$

entonces se cumple

a) $x \in \left\langle \frac{25}{16}; \frac{11}{17} \right]$

b) $x \in \left\langle \frac{25}{16}; \frac{17}{11} \right]$

c) $x \in \left\langle \frac{25}{16}; \frac{11}{7} \right]$

d) $x \in \left\langle \frac{25}{16}; \frac{11}{7} \right\rangle$

e) $x \in \left[ \frac{25}{16}; \frac{11}{7} \right\rangle$

E = 2

a) −5

d) 1

16. Al re

$x^2$ − 1

Poder

a) No

b) x

c) x

d) x

e) x

17. Resolv

a) < 0;

b)[−2;

c) < −∞

d)[−2;

e)[−2;

18. Indiq

$-1) = 10$

⑤ $x^2+2x+a > 10$

$x^2+2x+a-10 > 0$

$\Delta: b^2-4ac$

$2^2-4(1)(a-10)$

$4-4a+40$

$44-4a<0$

Menor que 0 para que tenga raíces reales.

$44 < 4a$

$\therefore \underline{a > 11}$

⑥ $2x^2+bx-15=0$

$2(-5)^2+b(-5)-15=0$

$50-5b-15=0$

$\frac{35}{5}=b \longrightarrow \underline{b=7}$

⑦ $x^2-5x+1=0 \quad CS\{a;b\}$

$$\boxed{x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}}$$

$x_1=\frac{5+\sqrt{(-5)^2-4}}{2} \longrightarrow \frac{5+\sqrt{21}}{2}$

$x_2=\frac{5-\sqrt{21}}{2}$

$$E=\frac{1}{\frac{5+\sqrt{21}}{2}+\frac{2}{2}^2}+\frac{1}{\frac{5-\sqrt{21}}{2}+2^2}$$

$$=\frac{1}{\frac{9+\sqrt{21}}{2}}+\frac{1}{\frac{9-\sqrt{21}}{2}}$$

$$=\frac{2}{9+\sqrt{21}}+\frac{2}{9-\sqrt{21}}$$

$$\frac{\cancel{2}(9-\sqrt{21})+\cancel{2}(9+\sqrt{21})}{\cancel{60}}=\frac{9-\cancel{\sqrt{21}}+9+\cancel{\sqrt{21}}}{30}$$

$$\frac{\cancel{18}}{30}=\frac{3}{5}$$

⑧ $R_1=1-\sqrt{3}$

Entonces $R_2=1+\sqrt{3}$

$(x-R_1)(x-R_2)=0$

$(x-(1-\sqrt{3}))(x-(1+\sqrt{3}))=0$

$x^2-x(1+\sqrt{3})-x(1-\sqrt{3})+(1-\sqrt{3})(1+\sqrt{3})$

$x^2-x-\cancel{x\sqrt{3}}-x+\cancel{x\sqrt{3}}+1-3$

$\underline{x^2-2x-2=0}$

x" cumple

+ $\log^2 2 + \log^3 2 + \dots$

~~b) 5~~ c) 7

e) 9 $\longrightarrow 2^3 = 8 \longrightarrow y = 8$

$\log_{32} y = 7$

$8^6 = \frac{x^2 \cdot 8^5}{2}$

$= 6$

$2^{18} = x^2 \cdot 2^{14}$ $\rightarrow \frac{8}{14} = \frac{2}{4}$

$2^4 = x^2$

$4 = x$

b) 4 c) 12

e) 18

de:

$(\log_2 3 + 1)$, es

a) 2 b) 4 c) 12
d) 14 e) 18

ique la

30. El equivalente de:
$colog_6\ antilog_8\ (log_2\ 3 + 1)$, es
a) 8 b) -4 c) 6
d) -3 e) 10

$(a-b)^3 = a^3 - b^3 - 3ab(a-b)$

$a^3 - 3a^2b + 3ab^2 - b^3$

24 $3\log(5-x) = \log(35-x^3)$

es de

$10^{(5-x)^3} = 10^{(35-x^3)}$

$(5-x)^3 = 35 - x^3$

$5^3 - 3(5)^2 x + 3(5)(x)^2 - \cancel{x^3} = 35 - \cancel{x^3}$

$125 - 75x + 15x^2 = 35$

$=n$

$\cancel{90} - \cancel{75}x + \cancel{15}x^2 = 0$

$x^2 - 5x + 6$

$x \quad -2$

$x \quad -3$

$\longrightarrow x = 2 \wedge x = 3$

Producto $= 2 \times 3 = 6$

elación:

$(x-2)(x-3) = 0$

$x+10$

22 $\log_2(x^2 - 3x + 6) - \log_2(x-1) = 2$

$\log_2 \frac{(x^2-3x+6)}{(x-1)} = 2$

$\frac{x^2-3x+6}{x-1} = 2^2$

$x^2 - 3x + 6 = 4x - 4$

$x^2 - 7x + 10 = 0$

$x \quad -5$

$x \quad -2$

$(x-5)(x-2) = 0$

ecuación

$x = 5 \wedge x = 2$

$\therefore$ Suma $5 + 2 = 7$

r la inecuación:

33 < 0

afirmar que:

te solución real

/10

/10

(21) $\log_{\frac{1}{81}} x = -0{,}25$

$\dfrac{-x}{x} \leq x$

$\left(\dfrac{1}{81}\right)^{-0{,}25} = x$

$\left(\dfrac{1}{81}\right)^{(-1)\left(\frac{1}{4}\right)} = x$

$\cup [1; +\infty >$ $\quad \left(3^4\right)^{\left(\frac{1}{4}\right)} = x$

$\cup [1; +\infty >$

$[1; +\infty >$ $\quad \therefore x = 3$

l intervalo solución de

ÁLGEBRA S4

① $5(3x-4)-8(2x+1)=-3(2x+1)(5x-4)$

$15x-20-16x-8=-3(6x^2-8x+3x-4)$ $\quad 6x^2-5x-4$

$-x-28=-18x^2+15x+12$

$18x^2-16x-40=0$

$9x^2-8x-20=0$

$9x \quad 10$

$x \quad -2$

$(9x+10)(x-2)=0$

$x=\frac{-10}{9}$

$x=2$ Mayor

$\underline{2(3)=6}$

② $\Delta: b^2-4ac$

$(-8)^2=4(1)(n)$

$\underline{n=16}$

④ $\Delta=b^2-4ac$

$nx^2-(2n+5)x+n+3=0$

$(-(2n+5))^2=4(n)(n+3)$

$\cancel{4n^2}+20n+25-\cancel{4n^2}-12n$

③

$mx^2-24x+m-7=0$

$\Delta=0$

$24\times 24$

$96$

$48$

$576$ $\quad 144$

$(9x+10)(x-2)=0$

$+2)(x-1)$

④ $\Delta = b^2 - 4ac$

$nx^2 - (2n+5)x + n + 3 = 0$

$(-(2n+5))^2 - 4(n)(n+3) =$

$\cancel{4n^2} + 20n + 25 - \cancel{4n^2} - 12n$

$8n + 25$

Tiene raices complejas entonces:

$8n + 25 < 0$

$8n < -25$

$=0$

$ac$

$+n+3=0$

$4(n)(n+3)=$

$-4n^2-12n$

omplejos

3

$mx^2-24x+m-7=0$

$\Delta=0$

$(-24)^2=4(m)(m-7)$

$(-24)^2=4(m^2-7m)$

$(-24)^2=(2m)^2-28m$

$(2m)^2-28m-(-24)^2$

$4m^2-28m-576$

$m^2-7m-144$

$m \quad -16$

$m \quad +9$

$(m-16)(m+9)$

$m=16 \wedge m=-9$