MATEMATICA I
SECCIÓN: U7

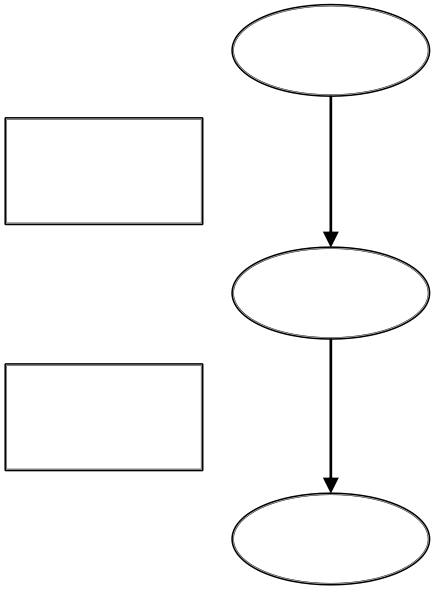
CLASE N° 5

- Fórmulas

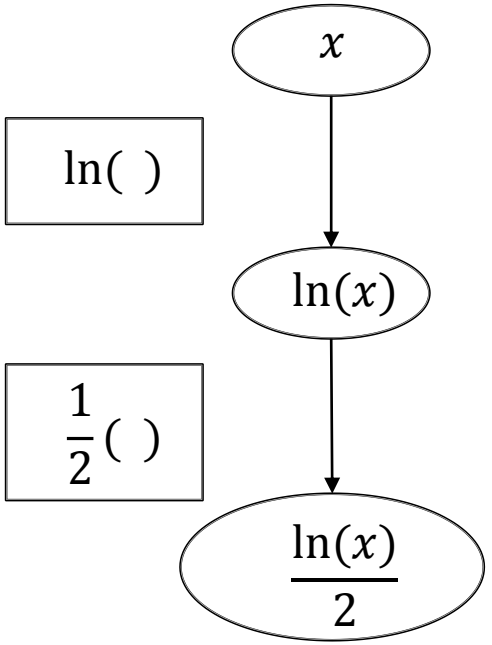
Prof. Robert Espitia 28/06/2022

FÓRMULAS

Diagrama



Complete el diagrama para representar $\frac{\ln(x)}{2}$



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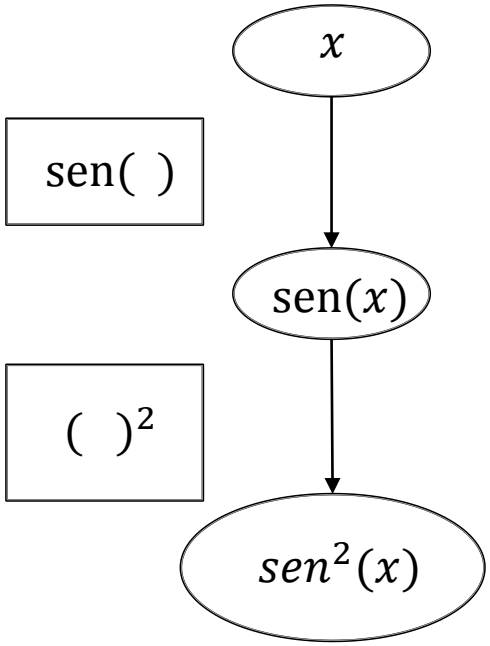
Complete el diagrama para representar
$sen^2(x)$



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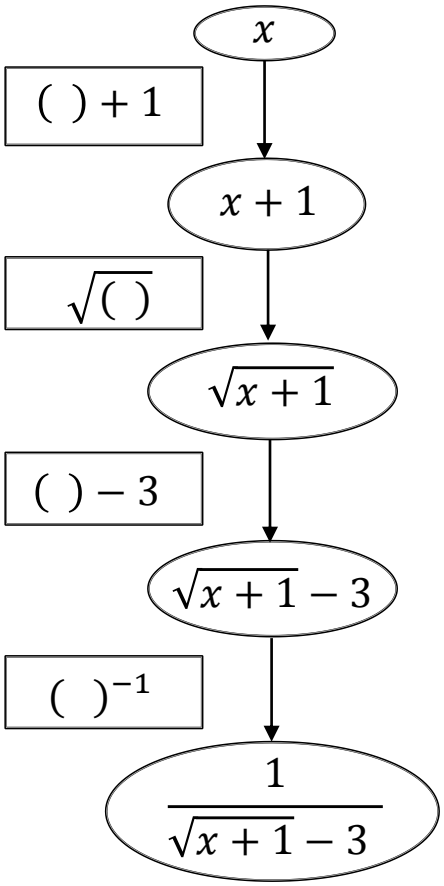
Complete el diagrama para representar $\frac{1}{\sqrt{x+1}-3}$



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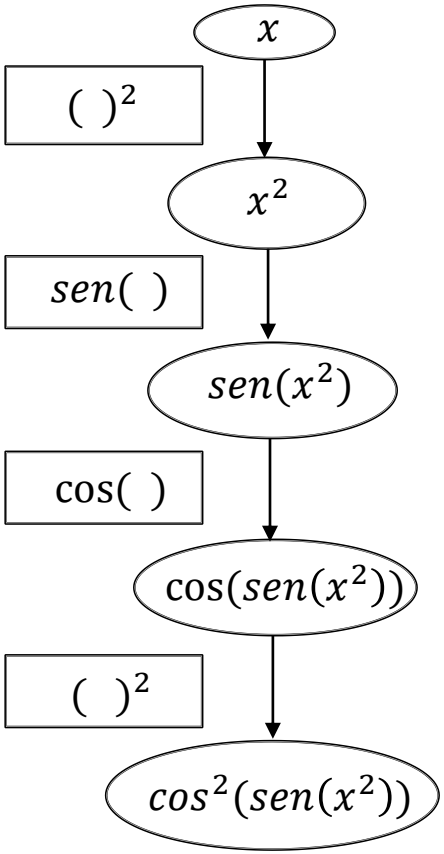
Complete el diagrama para representar
$cos^2(sen(x^2))$



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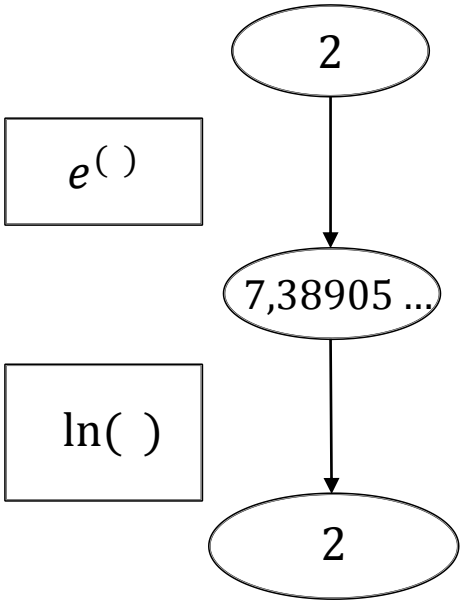
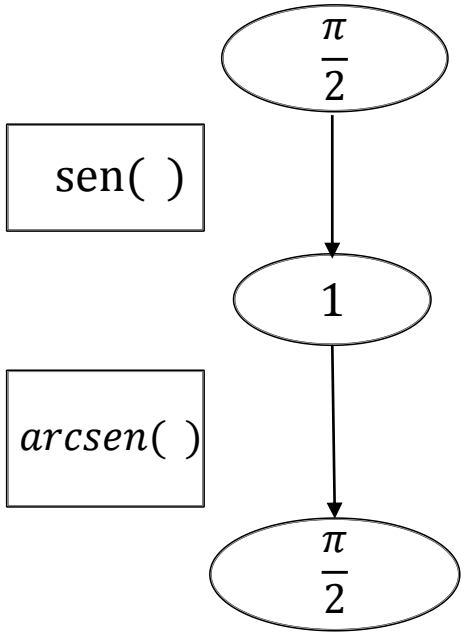
Funciones Inversas





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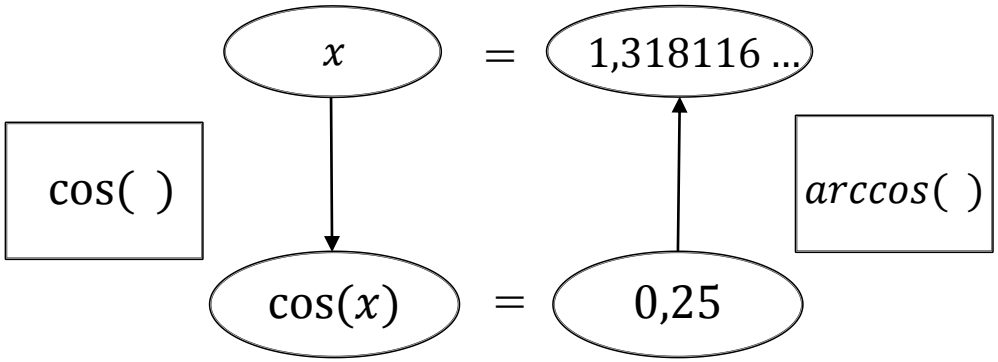
Resolver Ecuaciones

Resolver la ecuación $\cos(x) = 0{,}25$



$x = 1{,}318116 \ldots$

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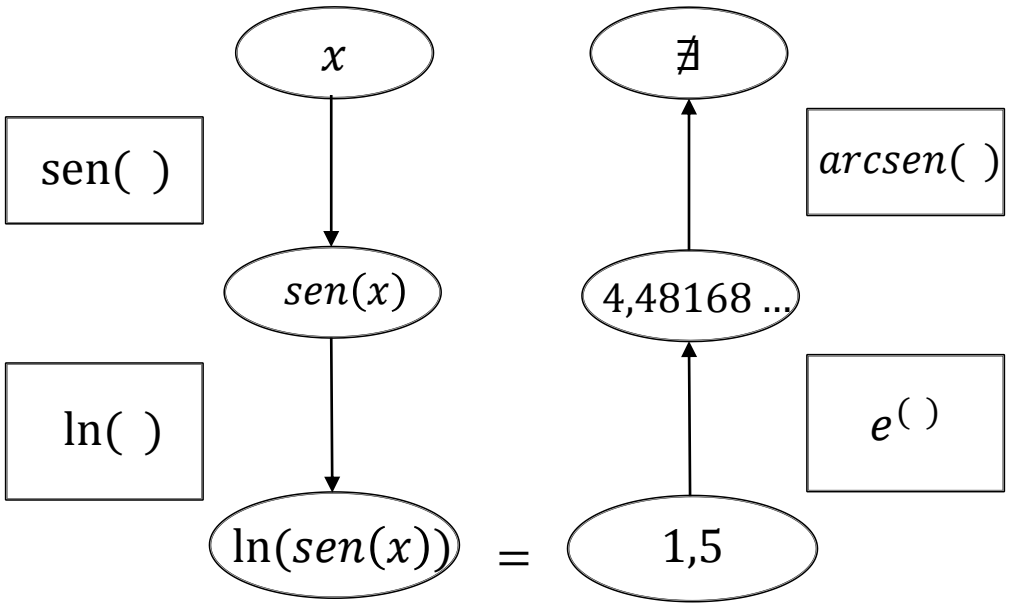
Resolver la ecuación $\ln\big(sen(x)\big) = 1{,}5$



No existe un valor para x que satisfaga la ecuación

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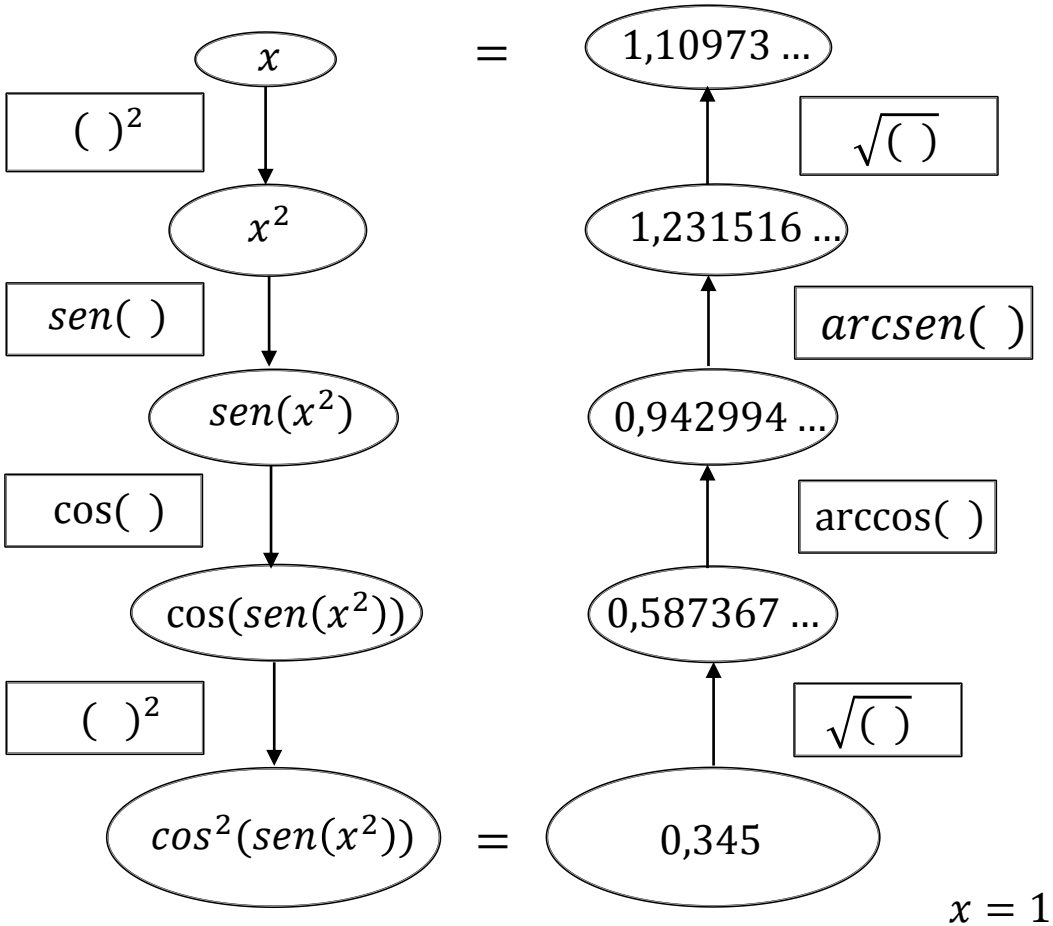
Resolver la ecuación $cos^2\left(sen(x^2)\right) = 0{,}345$



$x = 1{,}10973 \ldots$

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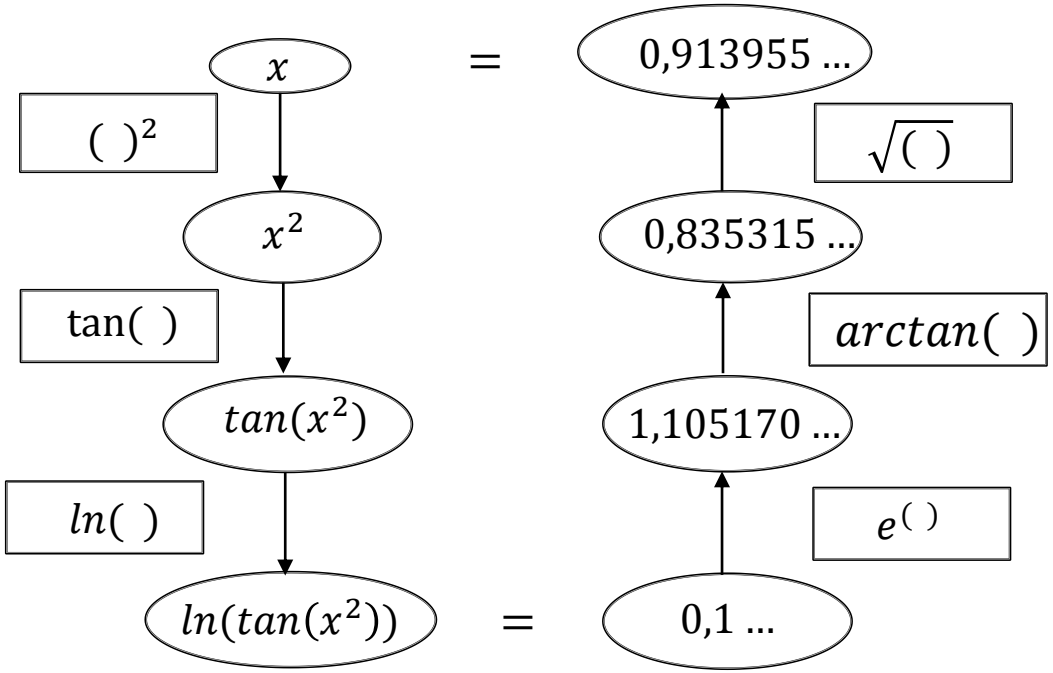
Resolver la ecuación $ln(tan(x^2) = 0{,}1$



$x = 0{,}913955 \ldots$

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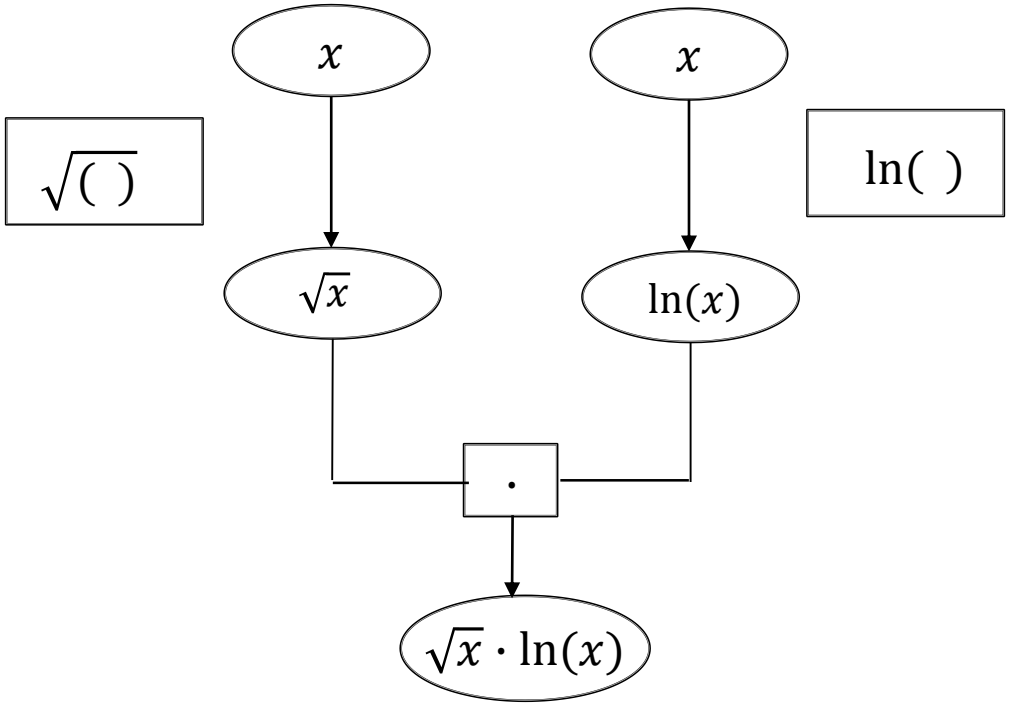
Diagramas ramificados

Complete el diagrama para representar $\sqrt{x} \cdot \ln(x)$



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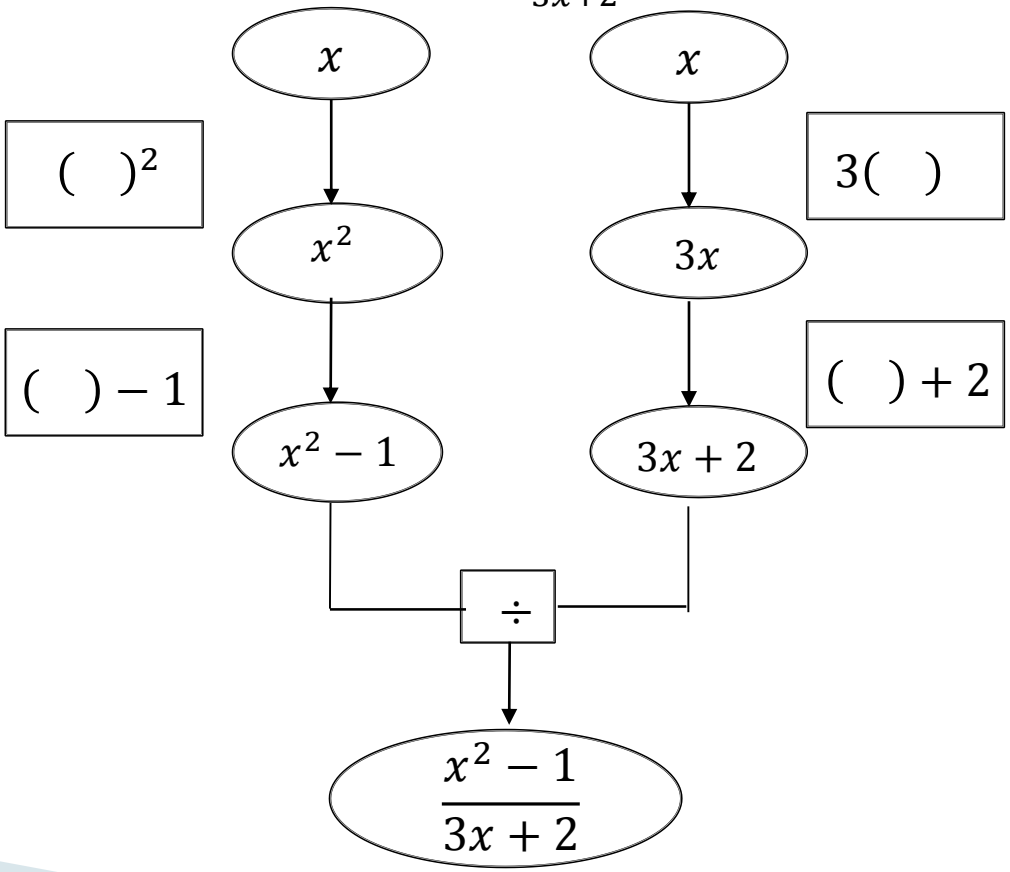
Expresiones racionales

Complete el diagrama para representar $\frac{x^2-1}{3x+2}$



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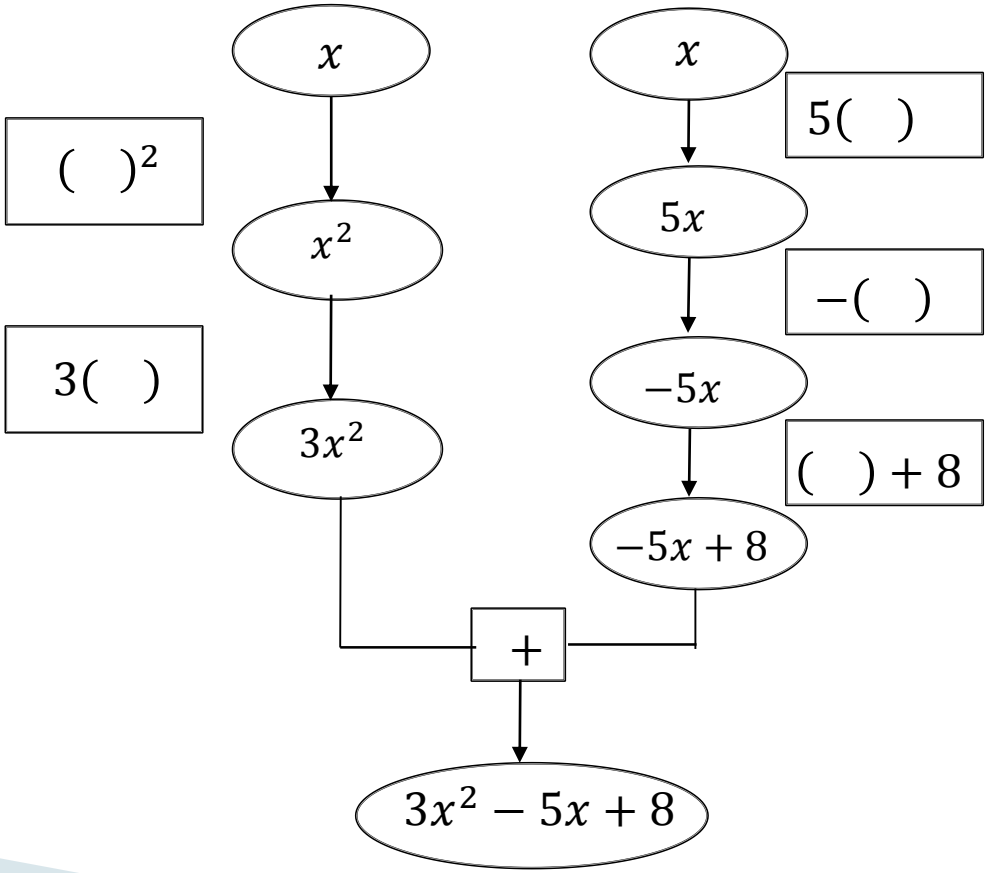
Polinomios

Complete el diagrama para representar $3x^2 - 5x + 8$



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Resolver ecuaciones sin diagramas

Resolver las siguientes ecuaciones:

a. $Sen(x) = \frac{\sqrt{3}}{2}$

Solución:

$$Sen(x) = \frac{\sqrt{3}}{2}$$

$$ArcSen(Sen(x)) = ArcSen\left(\frac{\sqrt{3}}{2}\right)$$

$$x = \frac{\pi}{3}$$

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b. $arctan(x^2+1)=\frac{\pi}{4}$

Solución:

$$arctan(x^2+1)=\frac{\pi}{4}$$

$$\tan(arctan(x^2+1))=\tan\left(\frac{\pi}{4}\right)$$

$$x^2+1=1$$

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

$$x^2=0$$

$$\sqrt{x^2}=\sqrt{0}$$

$$|x|=0$$

$$x=0$$

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c. $arccos\left(sen\left(ln(x-2)\right)\right)=0$

Solución:

$$arccos\left(sen\left(ln(x-2)\right)\right)=0$$

$$cos\left(arccos\left(sen\left(ln(x-2)\right)\right)\right)=\cos(0)$$

$$sen\left(ln(x-2)\right)=1$$

$$arcsen\left(sen\left(ln(x-2)\right)\right)=arcsen(1)$$

$$ln(x-2)=\frac{\pi}{2}$$

$$e^{\,ln(x-2)}=e^{\frac{\pi}{2}}$$

$$x-2=e^{\frac{\pi}{2}}$$

$$x-2+2=e^{\frac{\pi}{2}}+2$$

$$x=e^{\frac{\pi}{2}}+2$$

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d. $3x - 5 = x + 2$

Solución:

$$3x - 5 = x + 2$$
$$3x - 5 - (x + 2) = x + 2 - (x + 2)$$
$$3x - 5 - x - 2 = 0$$
$$2x - 7 = 0$$
$$2x - 7 + 7 = 7$$
$$2x = 7$$
$$\frac{2x}{2} = \frac{7}{2}$$
$$x = \frac{7}{2}$$

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c. $x-\frac{2}{3}=\frac{2x}{5}-1$

Solución:

$$x-\frac{2}{3}=\frac{2x}{5}-1$$

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

$$x-\frac{2}{3}-\frac{2x}{5}+1=0$$

$$\frac{3x}{5}+\frac{1}{3}=0$$

$$\frac{3x}{5}+\frac{1}{3}-\frac{1}{3}=-\frac{1}{3}$$

$$\frac{3x}{5}=-\frac{1}{3}$$

$$\frac{5}{3}\left(\frac{3x}{5}\right)=\frac{5}{3}\left(-\frac{1}{3}\right)$$

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