

Nombre: SOLUCIONES 4º ESO No se puede utilizar calculadora.

1. Resolver y comprobar:

(1,5 puntos)

$$(x-3)(2x^2-8)(x^2+5x)=0$$

$x-3=0; \boxed{x=3} \quad 0.2/$
 $2x^2-8=0; 2x^2=8; x^2=4 \rightarrow \boxed{x=2} \quad 0.2/$
 $ \rightarrow \boxed{x=-2} \quad 0.2/$
 $x^2+5x=0; x(x+5)=0 \rightarrow \boxed{x=0} \quad 0.2/$
 $ \rightarrow \boxed{x=-5} \quad 0.2/$

1,5
(1+0,5)

Comprobación:

$x=3 \rightarrow 0 \cdot 10 \cdot 24 = 0 \quad \checkmark \quad 0.1/$

$x=2 \rightarrow -1 \cdot 0 \cdot 14 = 0 \quad \checkmark \quad 0.1/$

$x=-2 \rightarrow -5 \cdot 0 \cdot (-6) = 0 \quad \checkmark \quad 0.1/$

$x=0 \rightarrow -3 \cdot (-8) \cdot 0 = 0 \quad \checkmark \quad 0.1/$

$x=-5 \rightarrow -8 \cdot 42 \cdot 0 = 0 \quad \checkmark \quad 0.1/$

2. Resolver y comprobar:

(2,5 puntos)

$$\frac{(3x^2+2)(3x^2-2)}{5} - \frac{(3x-1)^2}{4} = \frac{3(x-1)}{2}; \frac{9x^4-4}{5} - \frac{9x^2-6x+1}{4} = \frac{3x-3}{2} \xrightarrow{0.25/} 4(9x^4-4) - 5(9x^2-6x+1) = 10(3x-3)$$

$36x^4 - 16 - 45x^2 + 30x - 5 = 30x - 30; 36x^4 - 45x^2 + 9 = 0; 4x^4 - 5x^2 + 1 = 0; \text{cambio de variable } x^2 = z \Rightarrow 4z^2 - 5z + 1 = 0$

$z = \frac{5 \pm \sqrt{25-16}}{8} = \frac{5 \pm 3}{8}$
 $z=1 = x^2 \Rightarrow \boxed{x = \pm 1} \quad 0.5/$
 $z = \frac{2}{8} = \frac{1}{4} = x^2 \Rightarrow \boxed{x = \pm 1/2} \quad 0.5/$

2,5
(1,75 + 0,75)

Comprobación:

$x=1 \rightarrow \frac{5}{5} - \frac{4}{4} = 0; 1-1=0 \quad \checkmark \quad 0.25/; x=-1 \rightarrow \frac{5}{5} - \frac{16}{4} = -\frac{6}{4}; 1-4 = -3 \quad \checkmark$

$x=1/2 \rightarrow \frac{(\frac{3}{4}+2)(\frac{3}{4}-2)}{5} - \frac{(\frac{3}{2}-1)^2}{4} = -\frac{3}{2}; \frac{11 \cdot \frac{5}{4}}{5} - \frac{1}{4} = -\frac{3}{4}; \frac{-8 \cdot 11}{8} - \frac{1}{16} = -\frac{3}{4}; -\frac{11}{16} - \frac{1}{16} = -\frac{3}{4}; -\frac{12}{16} = -\frac{3}{4} \quad \checkmark \quad 0.25/$

$x=-1/2 \rightarrow \frac{(\frac{3}{4}+2)(\frac{3}{4}-2)}{5} - \frac{(-\frac{3}{2}-1)^2}{4} = -\frac{9}{2}; \frac{4 \cdot \frac{5}{4}}{5} - \frac{(-\frac{5}{2})^2}{4} = -\frac{9}{4}; \frac{-8 \cdot 11}{8} - \frac{25}{4} = -\frac{9}{4}; -\frac{11}{16} - \frac{25}{16} = -\frac{9}{4}; -\frac{36}{16} = -\frac{9}{4} \quad \checkmark \quad 0.25/$

3. Resolver y comprobar:

(2,5 puntos)

$$\sqrt{2x+5} - \sqrt{x+2} = 1$$

$$\sqrt{2x+5} = 1 + \sqrt{x+2}$$

$$(\sqrt{2x+5})^2 = (1 + \sqrt{x+2})^2$$

$$2x+5 = 1 + 2\sqrt{x+2} + x+2$$

$$x+2 = 2\sqrt{x+2}$$

$0.5/ (x+2)^2 = (2\sqrt{x+2})^2$

$$x^2 + 4x + 4 = 4(x+2)$$

$$x^2 + 4x + 4 = 4x + 8$$

$0.5/ x^2 = 4 \rightarrow \boxed{x = -2}$
 $ \rightarrow \boxed{x = 2} \quad \checkmark$

Comprobación:

$x = -2 \rightarrow \sqrt{1} - \sqrt{0} = 1 \quad \checkmark \quad 0.25/$

$x = 2 \rightarrow \sqrt{9} - \sqrt{4} = 1; 3-2=1 \quad \checkmark \quad 0.25/$

2,5
(2+0,5)

