



COLEGIO ALMA'S
bilingual school

APPELLIDOS Y NOMBRE: *Corrección Examen Evaluación*
CURSO: *1º Bachillerato* N° *1ª Evaluación*
FECHA: *12-12-2017* ASIGNATURA: *Matemáticas*

1) a) $\frac{-3\sqrt{2}}{\sqrt{5}-2} \frac{\sqrt{5}+2}{\sqrt{5}+2} = \frac{-3\sqrt{10}-6\sqrt{2}}{5-4} = \boxed{-3\sqrt{10}-6\sqrt{2}}$

b) $\frac{2+9\sqrt{2}}{5 \cdot \sqrt[3]{32}} \frac{\sqrt[3]{3}}{\sqrt[3]{3}} = \frac{2\sqrt[3]{3}+9\sqrt[3]{2^3 \cdot 3^2}}{15} = \boxed{\frac{2\sqrt[3]{3}+9\sqrt[3]{72}}{15}}$

2) a) $x^2+4x+4-2(x^2-2x+1)+x^2-9-1=0$
 $x^2+4x+4-2x^2+4x-2+x^2-9-1=0$
 $8x-8=0 \rightarrow \boxed{x=1}$

b) $x^3-9x^2+15x+25=0$

1	-9	15	25
5		5	-20
			-25
1	-4	-5	0

$\boxed{x=5}$

$x = \frac{4 \pm \sqrt{16+20}}{2} = \frac{4 \pm 6}{2} \rightarrow \boxed{x=5}$
 $\rightarrow \boxed{x=-1}$

c) $81x^4-18x^2+1=0$

$(9x^2-1)^2=0 \rightarrow 9x^2-1=0 \rightarrow 9x^2=1 \rightarrow x^2=1/9 \rightarrow \boxed{x=\pm 1/3}$

d) $mcm = (x+2)(x-2)$
 $6x+1 = (x+1)(x-2) + x(x+2)$
 $6x+1 = x^2-x-2+x^2+2x$
 $2x^2-5x-3=0$

$x = \frac{5 \pm \sqrt{25+24}}{4} = \frac{5 \pm 7}{4} \rightarrow \boxed{x=3}$
 $\rightarrow \boxed{x=-1/2}$

e) $(\sqrt{3x-2})^2 = (3-\sqrt{x-1})^2$
 $3x-2 = 9-6\sqrt{x-1}+x-1$
 $6\sqrt{x-1} = 10-2x$

$(3\sqrt{x-1})^2 = (5-x)^2$
 $9(x-1) = 25-10x+x^2$
 $9x-9 = 25-10x+x^2$
 $x^2-19x+34=0$

$\rightarrow \boxed{x=7}$ No válido
 $\rightarrow \boxed{x=2}$

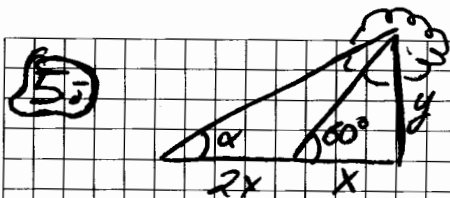


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APELLIDOS Y NOMBRE: Liencres

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$$\begin{aligned} \operatorname{tg} 60 &= \frac{y}{x} & \operatorname{tg} \alpha &= \frac{y}{3x} \\ x \operatorname{tg} 60 &= 3x \operatorname{tg} \alpha \\ \operatorname{tg} \alpha &= \frac{\operatorname{tg} 60}{3} \end{aligned}$$

$$\alpha = \arctg\left(\frac{\operatorname{tg} 60}{3}\right) = 30^\circ$$

6.) a) $\frac{\operatorname{sen} \hat{a}}{10} = \frac{\operatorname{sen} 30}{7} \rightarrow \hat{a} = \arcsen \frac{10 \operatorname{sen} 30}{7} = 45^\circ 58'$

$$\hat{c} = 180 - 30 - 45^\circ 58' = 104^\circ 42'$$

$$\frac{\operatorname{sen} 30}{7} = \frac{\operatorname{sen} 104^\circ 42'}{c} \rightarrow c = \frac{7 \operatorname{sen} 104^\circ 42'}{\operatorname{sen} 30} = 73.56 \text{ cm}$$

b) $c = \sqrt{10^2 + 7^2 - 2 \cdot 10 \cdot 7 \cdot \cos 80} = 11.17 \text{ cm}$

$$\frac{\operatorname{sen} 80}{11.17} = \frac{\operatorname{sen} \hat{a}}{10} \rightarrow \hat{a} = \arcsen \frac{10 \operatorname{sen} 80}{11.17} = 61^\circ 88'$$

$$\hat{b} = 180 - 80 - 61^\circ 88' = 38^\circ 12'$$

7.) a) $4 \operatorname{sen}^2 x - 4 \cos x = 1$ $\cos x = \frac{-4 \pm \sqrt{16 + 48}}{8} = \frac{-4 \pm 8}{8}$

$$4 - 4 \cos^2 x - 4 \cos x = 1$$

$$4 \cos^2 x + 4 \cos x - 3 = 0$$

$$\cos x = \frac{-13}{8} \quad \#$$

$$\cos x = \frac{1}{2}$$

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

$$\cos x = \frac{5\pi}{3}$$

b) $\operatorname{sen} x = \cos x$

$$\operatorname{tg} x = 1$$

$$x = \frac{\pi}{4}$$

$$x = \pi + \frac{\pi}{4}$$

$$x = \frac{5\pi}{4}$$



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APELLIDOS Y NOMBRE: Cercias

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8) $2x - y - 3 = 0 \rightarrow \vec{O}(1, 2)$

a) $x - 2y - 5 = 0 \rightarrow \vec{D}(2, 1) \rightarrow \vec{D} \cdot \vec{O} = 0 \Rightarrow$ Secantes perpendiculares 90°

b) $\vec{O}(1, -2)$
 $P(2, 3)$ } $d = \frac{|4 + 3 - 3|}{\sqrt{4 + 1}} = \frac{4}{\sqrt{5}} \neq 0 \Rightarrow$ Paralelas

c) $\vec{D}(2, -4)$
 $P(0, 3)$ } $d = \frac{|10 + 3 - 3|}{\sqrt{5}} = \frac{0}{\sqrt{5}} = 0 \Rightarrow$ Coincidentes

9) $x^2 + y^2 - 6x - 8y = 0 \rightarrow$ Centro $(3, 4)$
 $r = 5$

a) $P(6, 8) \rightarrow d = \sqrt{3^2 + 4^2} = 5 \rightarrow$ El pto pertenece a la circunferencia

b) $x + y - 7 = 0 \rightarrow d = \frac{|3 + 4 - 7|}{\sqrt{2}} = 0 \rightarrow$ la recta es diagonal a la circunferencia

c) $x^2 + y^2 - 2x = 0 \rightarrow C(2, 0)$ } distancia entre centros $d = \sqrt{1^2 + 4^2} = \sqrt{17}$
 $r = 2$ } $\sqrt{17} < 2 + 5 \Rightarrow$ son secantes

10) $\frac{(x-1)^2}{25} + \frac{y^2}{9} = 1 \rightarrow$ Centro $(1, 0)$ Horizontal
 $rx = 5 \rightarrow$ Cuerda = 10
 $ry = 3$ } $3^2 + c^2 = 5^2 \rightarrow c = 4$
 $F_1(5, 0)$
 $F_2(-3, 0)$

11) Centro = $\frac{F_1 + F_2}{2} = (2, 2)$ Vertical $\rightarrow ry = 5$ } $rx^2 + 4 = 25$
 $c = 2$ } $rx^2 = 16 \rightarrow rx = 4$

$\frac{(x-2)^2}{16} + \frac{(y-2)^2}{25} = 1$