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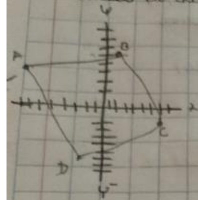
Nombre del trabajo: Problemario

Materia: Geometría Analítica.

Grado: 3 semestre

Grupo: A

Hallar el área, perímetro y semiperímetro del polígono si las coordenadas de sus vértices son A(-8,3) B(1,5) C(7,-1) D(-2,-6)



$$\begin{vmatrix} -8 & 3 \\ 1 & 5 \\ 7 & -1 \\ -2 & -6 \\ -8 & 3 \end{vmatrix}$$

$A\frac{1}{2} = (-40 - 1 - 42 - 6) - (-18 - 2 + 35 + 3)$

$A\frac{1}{2} = (-89) - (-12)$

$A = -77 \quad \frac{1}{2} = -38.5$

$D_{AB} \sqrt{1-(-8)+5-(3)}$

$49+4 \sqrt{53} = 7.28$

$D_{BC} \sqrt{7-(1)+-1-(5)}$

$49+4 \sqrt{53} = 7.28$

$D_{BC} \sqrt{7-(1)+-1-(5)}$

$36+36 \sqrt{72} = 8.48$

$D_{CD} \sqrt{-2-(7)+-6-(-1)}$

$81+25 \sqrt{106} = 10.29$

$D_{DA} \sqrt{-2-(-8)+-6-(3)}$

$36+81 \sqrt{117} = 10.81$

$S = 36.86 \quad S = 18.4$

(18)

Demuestra que las rectas que unen los puntos de los lados de un triangulo cuyos vertices son $A(-1,5)$ $B(-4,-6)$ $C(-8,2)$ dividen a dicho triangulo en cuatro triangulos de área iguales

$$A\ \frac{1}{2}\left|\begin{matrix} -1, & 5 \\ -4, & 6 \\ -8, & -2 \\ -1, & 5 \end{matrix}\right| \quad \begin{aligned} &A\ \tfrac{1}{2}\,(6+8-40)-(2+48-20) \\ &A\ \tfrac{1}{2} = (-20)-(30) \\ &A = -56\ \tfrac{1}{2} = -28 \end{aligned}$$

$$DAB\ \sqrt{-4-(-1)^2+-6-(5)^2}$$

$$9+121\sqrt{130} = 11.40$$

$$DBC\ \sqrt{-8-(-4)+-2-(-6)}$$

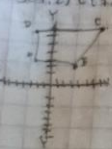
$$16+16\sqrt{32} = 5.65$$

$$DCA\ \sqrt{-8-(-1)+-2-(5)}$$

$$49+49\sqrt{98} = 9.89$$

$$S = 26.94 \quad S = 13.47$$

⑥ Hallar el área, perímetro o semiperímetro de la figura formada A(-3,3) B(4,2) C(7,7) D(-1,6)



$$\begin{vmatrix} -3 & 3 \\ 4 & 2 \\ 7 & 7 \\ -1 & 6 \\ -3 & 3 \end{vmatrix}$$

$\frac{1}{2} = (-6+28+42-3)-(12-7+14+12)$

$A = \frac{1}{2}(61)-(1)$

$A = 60 \quad \frac{1}{2} = 30$

$D_{AB} \sqrt{4-(-3)+2-(3)}$

$49+1 = \sqrt{50} = 7.0$

$D_{BC} \sqrt{7-(4)+7-(2)}$

$9+25 = \sqrt{34} = 5.8$

$D_{CD} \sqrt{-1-(7)+6-(7)}$

$64+1 = \sqrt{65} = 8.0$

$D_{DA} \sqrt{-1-(-3)+6-(3)}$

$4+9 = \sqrt{13} = 3.6$

24.56

$P = 24.56$

$P = \frac{1}{2}$

$P = 12.28$

Hallar el área del triangulo cuyos vertices son A(0,0) B(1,2) C(3,-4) compruebe el resultado con la formula de Heron para el área del triangulo de sus lados.

$A = \frac{1}{2} \begin{vmatrix} 0, & 0 \\ 1, & 2 \\ 3, & -4 \\ 0, & 0 \end{vmatrix}$

$A = \frac{1}{2}\ (-4) - (6)$

$A = -10$

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

$\Delta AB \sqrt{1-(0)+2(0)} = 0$

$\Delta BC \sqrt{3-(1)+-4-(2)}$

$4+36 = \sqrt{40} = 6.32$

$\Delta CO \sqrt{3-(0)+-4(0)} = 0$

$S = 6.32 \quad S = 3.16$

$A = \sqrt{3,116(3,16-6,32)}$

$\Delta \sqrt{3.16(3,16)}$

$A = \sqrt{9.98}$

$A = 3.15$

Hallar el área del triangulo cuyos vertices son A(0,0) B(1,2) C(3,-4) comprueba con la formula de Heron

$$A \frac{1}{2} \begin{vmatrix} 0,0 \\ 1,2 \\ 3\text{-}4 \\ 0,0 \end{vmatrix} \quad A \frac{1}{2} = (-4)-(0)$$

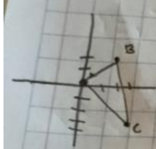
$$A = -10 \, \frac{1}{2} = 5$$

$$D_{AB} \sqrt{1-(0) + 2-(0)} = 0$$

$$D_{BC} \sqrt{3-(1) + -4 - (2)}$$

$$4 + 36 = \sqrt{40} = 6.32$$

$$D_{CA} \sqrt{3-(0) + -4-(0)} = 0$$



$$S = 6.32 \quad S = 3.16$$

$$\sqrt{3.16(3.16-0)(3.16-6.3)(3.16-0)}$$

$$A = \sqrt{3.16(3.16)}$$

$$A = \sqrt{9.98}$$

$$A \; 3.15$$

Demuestra por medio de la pendiente que los puntos A(3,-6) B(11,-5) C(9,2) D(1,1) son los vertices de un paralelogramo

$D_{AB}\sqrt{11-(6)+-5-(-6)}$

$25+1\ \sqrt{26} = 5.09$

$D_{BC}\sqrt{9-(11)+2(-5)}$

$4+49=\sqrt{53} = 7.28$

$D_{CD}\sqrt{1-(9)+1-(2)}$

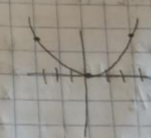
$64+1=\sqrt{65} = 8.06$

$D_{DA}\sqrt{1-(3)+1-(-6)}$

$4+49=\sqrt{53}=7.28$

$x^2-4=0$

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



Simetría

$x^2-(-y)=0$ $\quad x=(3,0)$

$x^2+y=0$ $\quad y=(0,-3)$

x	-3	-2	-1	0	1	2	3
y	0	0	3	0	3	0	0

$(x)^2-y=0$ $\quad x=(3,0)$

$x^2-y=0$ $\quad y=0,-3)$

$x^2-y=0$ $\quad y=\sqrt{x^2}$

6

$4x + 5y2 - 20 = 0$

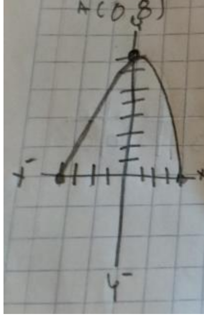
$x = 0$	$y = 0$
$5y^2 + 20 = 0$	$4x^2 + 20 = 0$
$y = \sqrt{\frac{-20}{5}}$	$x = \sqrt{\frac{-20}{4}}$
$y = -4$	$x = -5$
$y = 0$	$x = 0$

$y = \sqrt{\frac{-20 - 4(x)^2}{5}}$

x	-3	-2	-1	0	1	2	3
y	1.7	0	0	0	0	0	1.7

7 $x^2 - y2 = 16$

$x = 0$	$y = 0$	$x^2 + y2 = 16$
$x^2 + y^2 = 16$	$x^2 = 16$	$y^2 = 16\ x^2$
$x = 16/2$	$x = \sqrt{16}$	$y = \frac{-16 - x^2}{2}$
$y = 8$	$x = 4$	$y = \frac{16 - (x)^2}{2}$
A(0,8)	B(4,0) B(-4,0)	



x	-3	-2	-1	0	1	2	3
y	3.5	-6	7.5	8	7.5	6	3.5