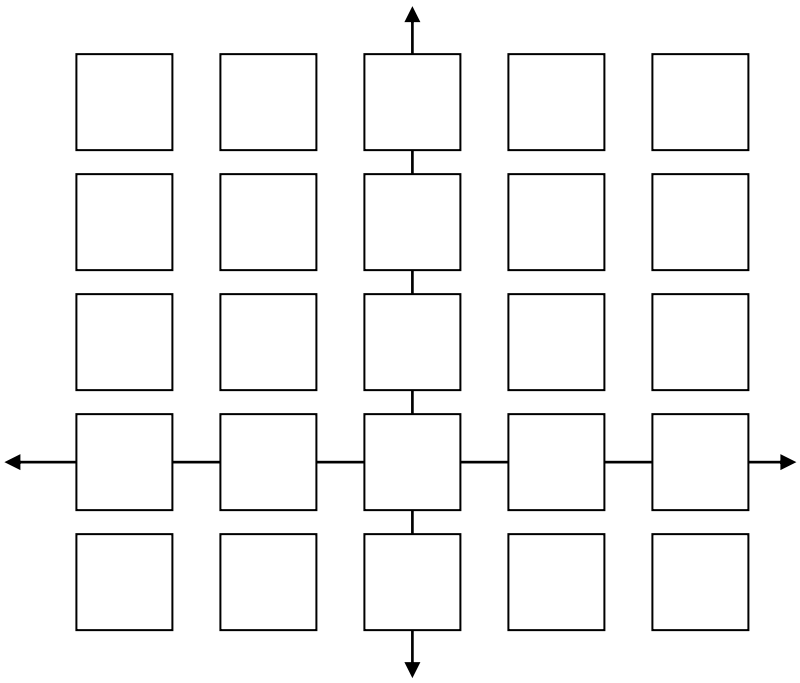
Algebra II **Class, Take Your Seats** *by David Pleacher*

Can you fill in the first initial of each student in this math teacher's seating chart using only the clues below?



CLUES:

1. All students are located at integral coordinates in the xy-plane. The x-coordinates belong to the set {-2, -1, 0, 1, 2}, and the y-coordinates belong to the set {-1, 0, 1, 2, 3}.
2. Aristotle is seated on the circle $x^2+y^2=9$.
3. Bernoulli is seated on the ellipse $x^2+4y^2=4$.
4. Cauchy sits on the line 2y – 1 = x.
5. Diophantus is located at one of the foci of the hyperbola $\frac{(y+2)^2}{16}-\frac{(x-2)^2}{9}=1$.
6. (0,7) and (4,5) are two consecutive vertices of a square. Euclid sits at one of the other vertices of the square.
7. Fibonacci sits on the parabola $y=-x^2+2x+6$.
8. Galois sits at the intersection of $y=-x^2$ and $y=-x-2$.
9. Hilbert is seated on the parabola $y=x^2-5x+6$.
10. Jacobi is located at the center of the hyperbola $4x^2-9y^2+18y+27=0$.
11. Kepler sits at one of the vertices of the hyperbola $\frac{(x-1)^2}{9}-\frac{y^2}{25}=1$.
12. Lagrange sits on the circle $x^2+y^2-x-y-2=0$.
13. Mobius sits on the line $y=-2x+1$.
14. Napier is seated at the center of the circle $(x-2)^2+y^2=49$.
15. Pythagoras is located on the hypotenuse of the right triangle whose vertices are (-1,4), (3,0), and (-1,0).
16. Riemann sits at the focus of the parabola $(y-1)^2=12(x+2)$.
17. A variable circle is always tangent to x = -1 and passes through (1,0). Saccheri sits on the locus of the center of that circle.
18. Taylor sits at the center of the ellipse $5x^2-10x+9y^2-54y+41=0$.

19. Venn is located on the circle $x^2+2x+y^2=0$.

20. Weil sits at one of the endpoints of the minor axis of the ellipse $\frac{(x+2)^2}{16}+\frac{(y-1)^2}{1}=1$.

21. Zeno sits at one of the foci of the ellipse $\frac{(x-2)^2}{4}+\frac{y^2}{8}=1$.

CLUE Worksheet
For each problem, write down all possible answers from the given domain and range.

CLUE	NAME	Possible Ordered Pairs
1		
2	Aristotle	
3	Bernoulli	
4	Cauchy	
5	Diophantus	
6	Euclid	
7	Fibonacci	
8	Galois	
9	Hilbert	
10	Jacobi	
11	Kepler	
12	Lagrange	
13	Mobius	
14	Napier	
15	Pythagoras	
16	Riemann	
17	Saccheri	
18	Taylor	
19	Venn	
20	Weil	
21	Zeno	