

[2] $x \leq 1$ LINE: VERTICAL

$x+2y > 2$ LINE: x -INT = 2, y -INT = 1

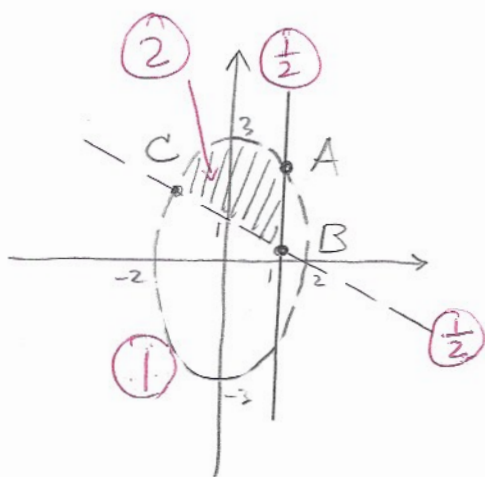
$9x^2+4y^2 < 36$ ELLIPSE: x -INT = ± 2 , y -INT = ± 3

TEST (0,0)

$0 \leq 1$ ✓

$0+2(0) > 2$ ✗

$9(0)^2+4(0)^2 < 36$ ✓



A: $x=1$ AND $9x^2+4y^2=36$

$9(1)^2+4y^2=36$ (1/2)

$4y^2=27$

$y^2 = \frac{27}{4}$

$y = \pm \frac{3\sqrt{3}}{2}$

$y > 0 \rightarrow y = \frac{3\sqrt{3}}{2}$

$A(1, \frac{3\sqrt{3}}{2})$ (1)

B: $x=1$ AND $x+2y=2$

$1+2y=2$ (1/2)

$2y=1$

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

$B(1, \frac{1}{2})$ (1/2)

C: $x+2y=2$ AND $9x^2+4y^2=36$

$x=2-2y$ (1)

$x=2-2(\frac{9}{5})$
 $= -\frac{8}{5}$

$9(2-2y)^2+4y^2=36$ (1)

$9(4-8y+4y^2)+4y^2=36$

$36-72y+36y^2+4y^2=36$

$40y^2-72y=0$ (1/2)

$8y(5y-9)=0$

$y=0$ or $5y-9=0$

$5y=9$

$y = \frac{9}{5}$

$C(-\frac{8}{5}, \frac{9}{5})$ (1)

$$[3] \left[\begin{array}{cccc|c} 2 & 3 & 4 & -7 & ① \\ 3 & 1 & -6 & 0 & \\ -2 & 0 & 4 & -2 & \end{array} \right] R_3 \leftrightarrow R_1 \rightarrow \left[\begin{array}{cccc|c} -2 & 0 & 4 & -2 & -\frac{1}{2}R_1 \\ 3 & 1 & -6 & 0 & \\ 2 & 3 & -4 & -7 & \frac{1}{2} \end{array} \right] \rightarrow$$

$$\left[\begin{array}{cccc|c} 1 & 0 & -2 & 1 & \frac{1}{2} \\ 3 & 1 & -6 & 0 & \\ 2 & 3 & -4 & -7 & \end{array} \right] \begin{array}{l} R_2 + (-3)R_1 \\ R_3 + (-2)R_1 \end{array} \rightarrow \left[\begin{array}{cccc|c} 1 & 0 & -2 & 1 & \\ 0 & ① & 0 & -3 & ② \\ 0 & 3 & 0 & -9 & \end{array} \right] R_3 + (-3)R_2 \rightarrow$$

$$\left[\begin{array}{cccc|c} 1 & 0 & -2 & 1 & \\ 0 & 1 & 0 & -3 & \\ 0 & 0 & 0 & 0 & \frac{1}{2} \end{array} \right] \text{RREF} \quad \begin{array}{l} x - 2z = 1 \\ y = -3 \end{array} \xrightarrow{\frac{1}{2}} \begin{array}{l} x = 2z + 1 \\ y = -3 \\ z = z \end{array} \quad \uparrow$$

[4] C is 3×5 AND A is 5×2 , so CA EXISTS AND IS 3×2

$$\begin{bmatrix} 0 & -1 & 1 & 0 & 2 \\ -2 & 2 & 0 & 1 & -1 \\ 1 & 0 & 2 & -2 & 0 \end{bmatrix} \begin{bmatrix} -2 & 1 \\ 0 & -1 \\ 2 & 0 \\ 1 & 2 \\ -1 & -2 \end{bmatrix}$$

①

$$= \begin{bmatrix} 0+0+2+0-2 & 0+1+0+0-4 \\ 4+0+0+1+1 & -2-2+0+2+2 \\ -2+0+4-2+0 & 1+0+0-4+0 \end{bmatrix} = \begin{bmatrix} 0 & -3 \\ 6 & 0 \\ 0 & -3 \end{bmatrix}$$

②

①