

Sistemas de ecuaciones con 1 parámetro CCSS

Discutir y resolver, según el valor del parámetro, los siguientes sistemas

$$1) \begin{cases} x + y = 3 \\ 2x - 3y = 1 \\ 3x + 2y = c \end{cases}$$

•c=8 SCD (2,1) •c≠8 SI

$$2) \begin{cases} x - 2y = 2 \\ x + y = 3 \\ x + cy = 4 \end{cases}$$

•c=4 SCD (8/3, 1/3) •c≠4 SI

$$3) \begin{cases} x + 2y = 3 \\ 2x + y = c \end{cases}$$

•SCD (2c-3/3, 6-c/3)

$$4) \begin{cases} x + 2y = 3 \\ ax + y + z = 0 \\ 2x + az = 0 \end{cases}$$

•a=1±√33/4 SI •a≠1±√33/4 SCD
(-3a/2a²-a-4, 3a²-6/2a²-a-4, 6/2a²-a-4)

$$5) \begin{cases} x + y + kz = 2 \\ 3x + 4y + 2z = k \\ 2x + 3y - z = 1 \end{cases}$$

•k=3 SCD (5-10α, -3+7α, α)
•k≠3 SCD (6+3k, -4-2k, -1)

$$6) \begin{cases} x - 3z = -3 \\ 2x + ky - z = -2 \\ x + 2y + kz = 1 \end{cases}$$

•k=-5 SI •k=2 SCD (3α-3, 4-5α/2, α)
•k≠2; k≠-5 SCD (-3k-3/k+5, 4/k+5, 4/k+5)

$$7) \begin{cases} kx + y - z = 0 \\ x - 3y + z = 0 \\ 3x + 10y + 4z = 0 \end{cases}$$

•k=-10/11 SCD (22α, α, -19α) •k≠-10/11 SCD (0,0,0)

$$8) \begin{cases} 2x - ky + 4z = 0 \\ x + y + 7z = 0 \\ kx - y + 13z = 0 \end{cases}$$

•k≠3, k≠-12/7 SCD (0,0,0)
•k=3 SCD (-5α, -2α, α) •k

$$9) \begin{cases} 2x + y + az = 4 \\ x + z = 2 \\ x + y + z = 2 \end{cases}$$

•a=2 SCD (2-z, 0, z) •a≠2 SCD (2,0,0)

$$10) \begin{cases} x + y + z = a \\ x + (1+a)y + z = 2a \\ x + y + (1+a)z = 0 \end{cases}$$

•a=0 SCD (0,1,-1) •a≠0 SCD x=-y-z

$$11) \begin{cases} (a+1)x + y + z = a+1 \\ x + (a+1)y + z = a+3 \\ x + y + (a+1)z = -2a-4 \end{cases}$$

•a=0 SI •a=-3 SCD (3z+4/3, 2+3z/3, z)
•a≠0, a≠-3 SCD (a+1/a, a+3/a, -2a-4/a)

$$12) \begin{cases} x + ay + z = a + z \\ x + y + az = -2(a+1) \\ ax + y + z = a \end{cases}$$

•a=1 SI •a=-2 SCD (3z+4/3, 2+3z/3, z)
•a≠1, a≠-2 SCD (a/a-1, a+2/a-1, 2a+2/1-a)

$$13) \begin{cases} (2+a)x + y + z = 0 \\ x + ay + z = 0 \\ 2x + y - z = 0 \end{cases}$$

•a=(5+√33)/2 SCD (-(15+√33/2)z, (16+√33)z, z)
•a=(5-√33)/2 SCD (-(15-√33/2)z, (16-√33)z, z)
•a≠(5±√33)/2 SCD (0,0,0)

$$14) \begin{cases} x + 2y + kz = 1 \\ 2x + ky + 8z = 3 \end{cases}$$

•k=4 SI •k≠4 SCD ((k-6)/(k-4), -(k+4)z; 1/(k-4)+2z, z)