

自主課題 No.3 解答

2年 組 番 名前:

連立方程式の計算

連立方程式の計算の基本的になります。過去の確認テストからもでてきます。

連立方程式の解き方

<加減法>

例 加減法 (2)

$$\begin{cases} 8x + 3y = 2 & \dots\dots ① \\ 5x + 2y = 1 & \dots\dots ② \end{cases}$$

$$\begin{array}{r} ① \times 2 \\ ② \times 3 \end{array} \quad \begin{array}{r} 16x + 6y = 4 \\ 15x + 6y = 3 \end{array}$$

両式の差を
0倍にする

$$\begin{array}{r} 16x + 6y = 4 \\ -15x - 6y = 3 \\ \hline x = 1 \end{array}$$

(1)を②に代入して、

$$5x + 2y = 1$$

$$5 + 2y = 1$$

$$2y = -4$$

$$y = -2$$

$x = 1, y = -2$

<代入法>

例 代入法

$$\begin{cases} x = -2y + 9 & \dots\dots ① \\ 2x - 3y = 11 & \dots\dots ② \end{cases}$$

①を②に代入すると、

$$2(-2y + 9) - 3y = 11$$

x を消去

$$-4y + 18 - 3y = 11$$

$$-7y = -7$$

$$y = 1$$

$y = 1$ を①に代入して、 $x = 7$

$$x = 7, y = 1$$

次の連立方程式を解きなさい。

(1) $\begin{cases} 5x + 2y = 3 & \dots\dots ① \\ 2x - 7y = 9 & \dots\dots ② \end{cases}$

①×2 10x + 4y = 6...①'
②×5 10x - 35y = 45...②'
①-②' 39y = -39
y = -1
y = -1を①に代入
5x - 2 = 3
5x = 5
x = 1

(x, y) = (1 , -1)

(2) $\begin{cases} 5x + 4y = 7 & \dots\dots ① \\ 2x - 3y = 12 & \dots\dots ② \end{cases}$

①×3 15x + 12y = 21...①'
②×4 8x - 12y = 48...②'
①+②' 23x = 69
x = 3
x = 3を①に代入
15 + 4y = 7
4y = -8
y = -2

(x, y) = (3 , -2)

(3) $\begin{cases} 3x + 7y = 5 & \dots\dots ① \\ 4x - 3y = -18 & \dots\dots ② \end{cases}$

①×4 12x + 28y = 20...①'
②×3 12x - 9y = -54...②'
①-②' 37y = 74
y = 2
y = 2を①に代入
3x + 14 = 5
3x = -9
x = -3

(x, y) = (-3 , 2)

(4) $\begin{cases} 3x + 2y = -2 & \dots\dots ① \\ 4x + 3y = -2 & \dots\dots ② \end{cases}$

①×3 9x + 6y = -6...①'
②×2 8x + 6y = -4...②'
①-②' x = -2
x = -2を①に代入
-6 + 2y = -2
2y = 4
y = 2

(x, y) = (-2 , 2)

(5) $\begin{cases} x - 2y = -13 & \dots\dots ① \\ y = -3x + 3 & \dots\dots ② \end{cases}$

①に②を代入
x - 2(-3x + 3) = -13
x + 6x - 6 = -13
7x = -7
x = -1

(x, y) = (-1 , 6)

(6) $\begin{cases} 2x + 5y = 4 & \dots\dots ① \\ 4x + 5y = -2 & \dots\dots ② \end{cases}$

②-① 2x = -6
x = -3
x = -3を①に代入
-6 + 5y = 4
5y = 10
y = 2

(x, y) = (-3 , 2)

(7) $\begin{cases} 4x - 3y = 27 & \dots\dots ① \\ 3x + 4y = -11 & \dots\dots ② \end{cases}$

①×3 12x - 9y = 81...①'
②×4 12x + 16y = -44...②'
①-②' -25y = 125
y = -5
y = -5を①に代入
4x + 15 = 27
4x = 12
x = 3

(x, y) = (3 , -5)

(8) $\begin{cases} -3x + 4y = -12 & \dots\dots ① \\ 5x - 3y = -2 & \dots\dots ② \end{cases}$

①×3 -9x + 12y = -36...①'
②×4 20x - 12y = -8...②'
①+②' 11x = -44
x = -4
x = -4を①に代入
12 + 4y = -12
4y = -24
y = -6

(x, y) = (-4 , -6)

(9) $\begin{cases} 3x - 2y = 14 & \dots\dots ① \\ 2x + 7y = 1 & \dots\dots ② \end{cases}$

①×2 6x - 4y = 28...①'
②×3 6x + 21y = 3...②'
①-②' -25y = 25
y = -1
y = -1を①に代入
3x + 2 = 14
3x = 12
x = 4

(x, y) = (4 , -1)

(10) $\begin{cases} 3x - 2y = 8 & \dots\dots ① \\ 5x - 3y = 7 & \dots\dots ② \end{cases}$

①×3 9x - 6y = 24...①'
②×2 10x - 6y = 14...②'
①-②' -x = 10
x = -10
x = -10を①に代入
-30 - 2y = 8
-2y = 38
y = -19

(x, y) = (-10 , -19)

(11) $\begin{cases} 6x + 4y = 2 & \dots\dots ① \\ 7x - 3y = -13 & \dots\dots ② \end{cases}$

①×3 18x + 12y = 6...①'
②×4 28x - 12y = -52...②'
①+②' 46x = -46
x = -1

(x, y) = (-1 , 2)