## F.2 Mathematics Worksheet 4
## Ch.4 Simultaneous Equations

---

**1. (a)** Solve the simultaneous equations $\begin{cases} y - x = 0 \\ 2x + y = 9 \end{cases}$ graphically.

**(b)** Solve the simultaneous equations $\begin{cases} 2x + y = 3 \\ x + 2y = 8 \end{cases}$ graphically. (Give your answer correct to 1 decimal place.)

$y - x = 0$

| $x$ | | | |
|---|---|---|---|
| $y$ | | | |

$2x + y = 9$

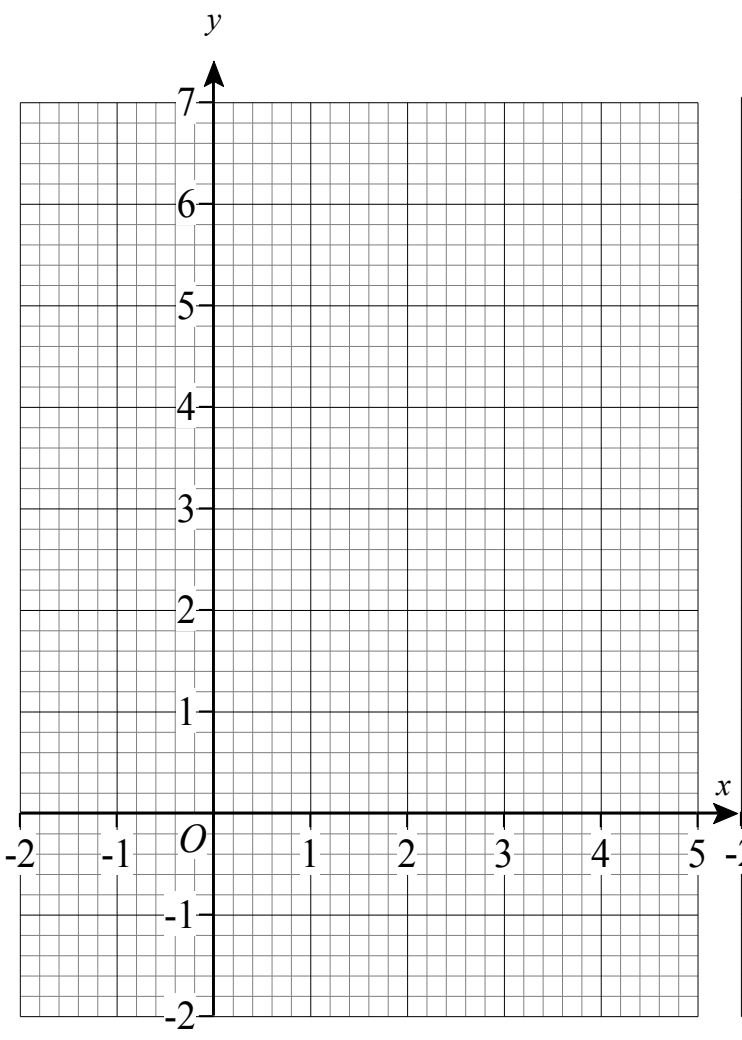
| $x$ | | | |
|---|---|---|---|
| $y$ | | | |

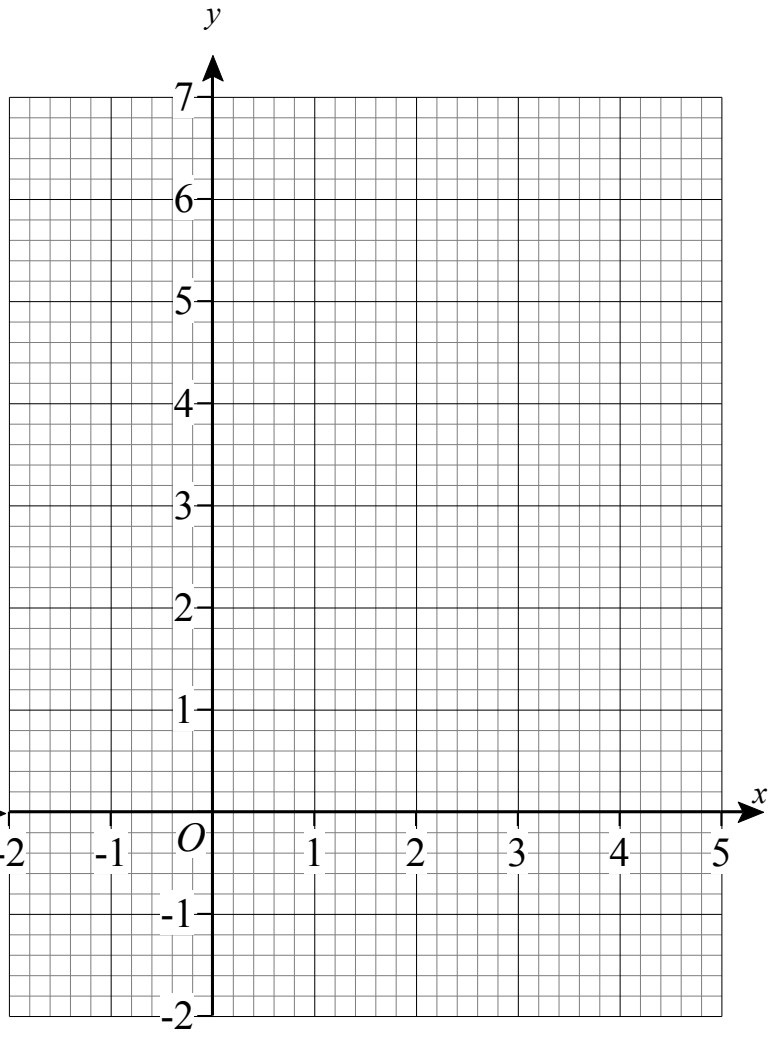
$2x + y = 3$

| | | | |
|---|---|---|---|
| | | | |

$x + 2y = 8$

| | | | |
|---|---|---|---|
| | | | |




$\therefore$ The solution is $x =$ ____ , $y =$ ____ .

**2.** Use the method of substitution to solve the following simultaneous equations.

**(a)** $\begin{cases} x + 2y = -1 \\ x - y = 5 \end{cases}$ **(b)** $\begin{cases} 3x + 4y = 4 \\ 5x - 2y = 24 \end{cases}$ **(c)** $x - 3y - 6 = 2x - 9y - 9 = 0$

**3.** Use the method of substitution to solve the following simultaneous equations.

**(a)** $\begin{cases} 9x + 2y = 12 \\ 5(2x + 1) - y = -1 \end{cases}$

**(b)** $\begin{cases} \frac{3y}{2} + 2x - 12 = 0 \\ 3x - y - 57 = 0 \end{cases}$

**4.** Use the method of elimination to solve the following simultaneous equations.

**(a)** $\begin{cases} 5x + y = 3 \\ x - 2y = 5 \end{cases}$ **(b)** $\begin{cases} 5x + 8y = 14 \\ 3x - 2y = -12 \end{cases}$ **(c)** $\begin{cases} 2y + 3x + 4 = 0 \\ 2x - 3y + 7 = 0 \end{cases}$

**5.** Use the method of elimination to solve the following simultaneous equations.

**(a)** $9x + 2y = 4y + 3x + 25 = 5$

**(b)** $\begin{cases} 5x - 8y = 5 \\ \dfrac{x}{3} - 3y = -12 \end{cases}$

**6.** A farm keeps some ducks and cows. Given that they have 42 heads and 120 feet altogether, find the respective number of ducks and cows in the farm.

**7.** Wayne goes to work either by bus or minibus. Given that he went to work by bus in 3 days and by minibus in 2 days last week, the total fare was $56.4. This week, he went to work by bus in 2 days and by minibus in 3 days, and the total fare was $57.6. What are the respective fares of a bus trip and a minibus trip paid by Wayne?

**8.** Sarah had some $2 and $5 coins. The total value of the coins was $78. If Sarah used 3 $2 coins and received 3 $5 coins, the ratio of the number of $2 coins to the number of $5 coins was 7 : 3. How many coins of each kind did Sarah have originally?