

[4.3B] Multiplication with the Elimination Method

$$\begin{aligned} \textcircled{1} \quad & 4(2x + y) = (7)4 \rightarrow 8x + 4y = 28 & 2 \cdot 3 + y = 7 \\ & 3x - 4y = 5 \rightarrow 3x - 4y = 5 & 6 + y = 7 \\ & & y = 1 \\ & & \boxed{(3, 1)} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & 2x - y = 8 \rightarrow 2x - y = 8 & 2x - 2 = 8 \\ & -2(x + 4y) = (-3) \cdot -2 \rightarrow -2x + 8y = 6 & 2x = 10 \\ & & x = 5 \\ & & \boxed{(5, 2)} \end{aligned}$$

You try...

$$\begin{aligned} \textcircled{3} \quad & 3a - 2b = 5 \rightarrow 3a - 2b = 5 \\ & -3(a - 4b) = (-5) \cdot -3 \rightarrow -3a + 12b = 15 \\ & a - 4(2) = -5 \rightarrow a - 8 = -5 & 10b = 20 \\ & a - 8 = -5 & b = 2 \\ & a = 3 & \boxed{(3, 2)} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & 2(7x - 5y) = (20)2 \rightarrow 14x - 10y = 40 \\ & 5(3x + 2y) = (21)5 \rightarrow 15x + 10y = 105 \\ & 3 \cdot 5 + 2y = 21 & 29x = 145 \\ & 15 + 2y = 21 & x = 5 \\ & 2y = 6 \\ & y = 3 & \boxed{(5, 3)} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & 2(4x + 3y) = (-14)2 \rightarrow 8x + 6y = -28 \\ & 3(6x - 2y) = (-8)3 \rightarrow 18x - 6y = -24 \\ & 6 \cdot -2 - 2y = -8 & 26x = -52 \\ & -12 - 2y = -8 & x = -2 \\ & -2y = 4 \\ & y = -2 & \boxed{(-2, -2)} \end{aligned}$$

Multiplication with the Elimination Method

Solve each system by using multiplication with the addition-or-subtraction method.

(#10-24) × 2

10. $3c - 8d = 7$
 $c + 2d = -7$

13. $4x + 5t = 22$
 $5x - t = 13$

16. $3t - 8z = 34$
 $7t + 4z = -34$

19. $4b + 13c = -24$
 $12b - 5c = 16$

22. $4x + 15t = 10$
 $3x + 10t = 5$

11. $3a + b = 4$
 $a - 2b = 6$

14. $2n + 5a = 14$
 $6n + 7a = 10$

17. $2c - 7d = 41$
 $6c + 5d = -7$

20. $18a - 5b = 17$
 $6a + 10b = -6$

23. $6n + 8c - 4 = 0$
 $9n + 10c - 7 = 0$

12. $x + y = 7$
 $3x - 2y = 11$

15. $3p + 4q = 4$
 $5p + 2q = 16$

18. $4r + 9s = 23$
 $-7r + 3s = -34$

21. $3p + 8q = 8$
 $5p - 2q = 21$

24. $6z - 5t + 10 = 0$
 $4z - 7t + 25 = 0$

Review (#2-20) × 2

Solve by the graphing method.

1. $y - x = 4$
 $y = 3x + 2$

2. $x + y = 1$
 $5x + y = -7$

3. $4x + 2y = 6$
 $x - y = 3$

Solve by the substitution method.

4. $a = 3b$
 $a - 5b = 16$

5. $8c - d = -3$
 $4c + 5d = 15$

6. $9p = 2q - 6$
 $3p - q = 12$

Solve by the addition-or-subtraction method.

7. $2a + 3b = -1$
 $a - 3b = 4$

8. $5x - 9y = -3$
 $4x - 3y = 6$

9. $2p + 3q + 1 = 0$
 $3p + 5q + 2 = 0$

Solve by whatever method you prefer.

10. $y = x + 2$
 $2x + y = 11$

13. $3x + 5y = 14$
 $2x - y = -1$

16. $a - 2b = 10$
 $a + b = 2(b + 6)$

19. $4x + 3y = 1$
 $6x - 2y = 21$

11. $x + y = 9$
 $x - 3y = -3$

14. $2a - 4b = 6$
 $7 + a = -3b$

17. $t + u = 11$
 $(10t + u) - (10u + t) = 27$

20. $3a + 4b = -25$
 $2a - 3b = 6$

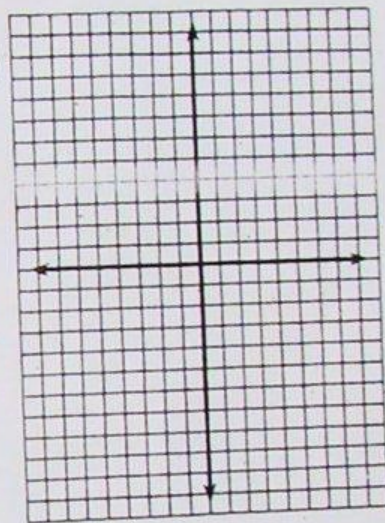
12. $3x - 2y = 1$
 $4y = 7 + 3x$

15. $r - s = 4$
 $r - 6 = 2(s - 6)$

18. $u - t = 5$
 $10t + u = 3(t + u)$

21. $5n - 2m = 1$
 $4n + 5m = 47$

2



WS [4.3 B]

Key

Elimination Method

⑩ $(-3, -2)$ ⑫ $(5, 2)$ ⑭ $(4, -3)$

⑮ $(-2, -5)$ ⑰ $(5, \frac{1}{3})$ ⑲ $(\frac{2}{3}, -1)$

⑳ $(2, -5)$ ㉔ $(5, \frac{5}{2})$

Review

② $(-2, 3)$ ④ $(-24, -8)$ ⑥ $(-10, -42)$

⑧ $(3, 2)$ ⑩ $(3, 5)$ ⑫ $(3, 4)$

⑭ $(-1, -2)$ ⑯ $(14, 2)$ ⑰ $(2, 7)$

⑳ $(-3, -4)$