Factor Pairs Practice

Solve each using prime factorization and factor pairs.

Mr. Merrick · October 2, 2025.

---

1. Find integers $\heartsuit, \diamondsuit$ such that
$$\begin{aligned} \heartsuit \times \diamondsuit &= 12 \\ \heartsuit + \diamondsuit &= -7 \end{aligned}$$

2. Find integers $\clubsuit, \spadesuit$ such that
$$\begin{aligned} \clubsuit \times \spadesuit &= 18 \\ \clubsuit + \spadesuit &= 9 \end{aligned}$$

3. Find integers $\star, \text{☺}$ such that
$$\begin{aligned} \star \times \text{☺} &= 20 \\ \star + \text{☺} &= -9 \end{aligned}$$

4. Find integers $\diamondsuit, \clubsuit$ such that
$$\begin{aligned} \diamondsuit \times \clubsuit &= 30 \\ \diamondsuit + \clubsuit &= 13 \end{aligned}$$

5. Find integers $\heartsuit, \spadesuit$ such that
$$\begin{aligned} \heartsuit \times \spadesuit &= 24 \\ \heartsuit + \spadesuit &= -11 \end{aligned}$$

6. Find integers $\☺, \diamondsuit$ such that

$$\begin{aligned} \☺ \times \diamondsuit &= 21 \\ \☺ + \diamondsuit &= 10 \end{aligned}$$

7. Find integers $\star, \heartsuit$ such that

$$\begin{aligned} \star \times \heartsuit &= 16 \\ \star + \heartsuit &= -10 \end{aligned}$$

8. Find integers $\spadesuit, \☺$ such that

$$\begin{aligned} \spadesuit \times \☺ &= 15 \\ \spadesuit + \☺ &= 8 \end{aligned}$$

9. Find integers $\clubsuit, \diamondsuit$ such that

$$\begin{aligned} \clubsuit \times \diamondsuit &= 36 \\ \clubsuit + \diamondsuit &= -15 \end{aligned}$$

10. Find integers $\star, \spadesuit$ such that

$$\begin{aligned} \star \times \spadesuit &= -40 \\ \star + \spadesuit &= -3 \end{aligned}$$