

1 解答 (1) 2496 (2) 2601 (3) 160 (4) 2000

$$\begin{aligned} (1) \quad 52 \times 48 &= (50 + 2)(50 - 2) \\ &= 50^2 - 2^2 \\ &= 2500 - 4 \\ &= 2496 \end{aligned}$$

$$\begin{aligned} (2) \quad 51^2 &= (50 + 1)^2 \\ &= 50^2 + 2 \times 1 \times 50 + 1^2 \\ &= 2500 + 100 + 1 \\ &= 2601 \end{aligned}$$

$$\begin{aligned} (3) \quad 22^2 - 18^2 &= (22 + 18)(22 - 18) \\ &= 40 \times 4 \\ &= 160 \end{aligned}$$

$$\begin{aligned} (4) \quad 105^2 - 95^2 &= (105 + 95)(105 - 95) \\ &= 200 \times 10 \\ &= 2000 \end{aligned}$$

2 解答 (1) 10609 (2) 9409 (3) 996004 (4) 6200 (5) 17400
(6) 18800 (7) 9936 (8) 999991

$$\begin{aligned} (1) \quad 103^2 &= (100 + 3)^2 \\ &= 100^2 + 2 \times 100 \times 3 + 3^2 \\ &= 10000 + 600 + 9 \\ &= 10609 \end{aligned}$$

$$\begin{aligned} (2) \quad 97^2 &= (100 - 3)^2 \\ &= 100^2 - 2 \times 100 \times 3 + 3^2 \\ &= 10000 - 600 + 9 \\ &= 9409 \end{aligned}$$

$$\begin{aligned} (3) \quad 998^2 &= (1000 - 2)^2 \\ &= 1000^2 - 2 \times 1000 \times 2 + 2^2 \\ &= 1000000 - 4000 + 4 \\ &= 996004 \end{aligned}$$

$$(4) \quad 81^2 - 19^2 = (81 + 19) \times (81 - 19)$$

$$\begin{aligned} &= 100 \times 62 \\ &= 6200 \end{aligned}$$

$$\begin{aligned} (5) \quad 137^2 - 37^2 &= (137 + 37) \times (137 - 37) \\ &= 174 \times 100 \\ &= 17400 \end{aligned}$$

$$\begin{aligned} (6) \quad 147^2 - 53^2 &= (147 + 53) \times (147 - 53) \\ &= 200 \times 94 \\ &= 18800 \end{aligned}$$

$$\begin{aligned} (7) \quad 108 \times 92 &= (100 + 8) \times (100 - 8) \\ &= 100^2 - 8^2 \\ &= 10000 - 64 \\ &= 9936 \end{aligned}$$

$$\begin{aligned} (8) \quad 997 \times 1003 &= (1000 - 3) \times (1000 + 3) \\ &= 1000^2 - 3^2 \\ &= 1000000 - 9 \\ &= 999991 \end{aligned}$$

3 解答 (1) 50 (2) 2496 (3) 199 (4) 2601 (5) 9604

$$\begin{aligned}(1) \quad 25^2 - 25 \times 23 &= 25 \times (25 - 23) \\ &= 25 \times 2 \\ &= 50\end{aligned}$$

$$\begin{aligned}(2) \quad 48 \times 52 &= (50 - 2)(50 + 2) \\ &= 50^2 - 2^2 \\ &= 2500 - 4 \\ &= 2496\end{aligned}$$

$$\begin{aligned}(3) \quad 100^2 - 99^2 &= (100 + 99)(100 - 99) \\ &= 199 \times 1 \\ &= 199\end{aligned}$$

$$\begin{aligned}(4) \quad 51^2 &= (50 + 1)^2 \\ &= 50^2 + 2 \times 1 \times 50 + 1^2 \\ &= 2500 + 100 + 1 \\ &= 2601\end{aligned}$$

$$\begin{aligned}(5) \quad 98^2 &= (100 - 2)^2 \\ &= 100^2 - 2 \times 2 \times 100 + 2^2 \\ &= 10000 - 400 + 4 \\ &= 9604\end{aligned}$$

4 解答 (1) 4 (2) -9 (3) 12 (4) 7

$$\begin{aligned}(1) \quad 2083^2 - 2081 \times 2085 &= 2083^2 - (2083 - 2) \times (2083 + 2) \\ &= 2083^2 - (2083^2 - 2^2) \\ &= 2^2 \\ &= 4\end{aligned}$$

$$\begin{aligned}(2) \quad 5718 \times 5712 - 5715^2 &= (5715 + 3) \times (5715 - 3) - 5715^2 \\ &= (5715^2 - 3^2) - 5715^2 \\ &= -3^2 \\ &= -9\end{aligned}$$

$$\begin{aligned}(3) \quad 3916 \times 3912 - 3910 \times 3918 &= (3914 + 2) \times (3914 - 2) - (3914 - 4) \times (3914 + 4) \\ &= (3914^2 - 2^2) - (3914^2 - 4^2) \\ &= -2^2 + 4^2 \\ &= 12\end{aligned}$$

$$\begin{aligned}(4) \quad 4839 \times 4833 - 4840 \times 4832 &= (4836 + 3) \times (4836 - 3) - (4836 + 4) \times (4836 - 4) \\ &= (4836^2 - 3^2) - (4836^2 - 4^2) \\ &= -3^2 + 4^2 \\ &= 7\end{aligned}$$