CLASS 8 MATHS EXTRA QUESTIONS

Extra Questions: Class 8 Maths Chapter 6 We Distribute, Yet Things Multiply

Practice questions beyond the textbook exercises, testing deeper understanding of the distributive property and algebraic identities for Class 8 Maths Chapter 6: We Distribute, Yet Things Multiply.

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1 (Assertion-Reason). Assertion: $(x+7)^2$ and $(x-7)^2$ differ by 28x. Reason: $(a+b)^2-(a-b)^2 = 4ab$.
Solution: Both true, and the reason correctly explains the assertion — $(a+b)^2-(a-b)^2=4ab$, so with a=x, b=7 the difference is $4 \times x \times 7=28x$.

2 (Numerical). Find the value of 998^2 using a suitable identity.
Solution: $998^2 = (1000-2)^2 = 1000000-4000+4 =$ **996004**.

3 (Short Answer). Is $(a+b)^3$ the same as a^3+b^3?
Solution: **No** — $(a+b)^3 = a^3+3a^2b+3ab^2+b^3$, which has two extra cross terms not present in a^3+b^3.

4 (Applied). A square garden of side (x+5) m has a square flower bed of side x m cut from one corner. Find the remaining area.
Solution: Remaining area = $(x+5)^2-x^2 = x^2+10x+25-x^2 =$ **(10x+25) m²**.

5 (Assertion-Reason). Assertion: 205×195 can be found quickly using a difference-of-squares identity. Reason: $205 \times 195 = (200+5)(200-5) = 200^2-5^2$.
Solution: Both true, and the reason correctly explains the assertion — $200^2-5^2 = 40000-25 = 39975$.

6 (Numerical). Two consecutive even numbers have squares differing by 84. Find the numbers.
Solution: Let the numbers be 2n and 2n+2. $(2n+2)^2-(2n)^2 = 8n+4 = 84 \Rightarrow n=10$. The numbers are **20 and 22** ($22^2-20^2=484-400=84$).

7 (Synthesis). If a+b=10 and ab=21, find a^2+b^2.
Solution: $a^2+b^2 = (a+b)^2-2ab = 100-42 =$ **58**.

8 (Applied). Simplify 104×96 using a suitable identity.
Solution: $104 \times 96 = (100+4)(100-4) = 10000-16 =$ **9984**.

9 (Short Answer). Why is $(x-y)^2$ always non-negative, even when x−y itself is negative?
Solution: Squaring removes the sign of any number, so $(x-y)^2 = (y-x)^2 \geq 0$ regardless of whether x−y is positive or negative.

10 (Assertion-Reason). Assertion: For any integer n, $(n+1)^2-(n-1)^2$ is always a multiple of 4. Reason: $(n+1)^2-(n-1)^2 = 4n$.
Solution: Both true, and the reason correctly explains the assertion — the expression simplifies exactly to 4n, which is always a multiple of 4.