

Indices: Adding and Subtracting Worksheet

1. Simplify the following expression and explain each step: $2x^5 + 3x^5 - x^5$
2. Given the expression $5a^7 - 2a^7 + 4a^7$, combine like terms and state the final answer.
3. If $m^4 + 7m^4 - 3m^4$ is written as a single term, what is the result? Show your working.
4. Simplify the following and explain your reasoning: $8y^2 - 5y^2 + 2y^2$
5. Expand and simplify: $(3p^3 + 2p^3) - (p^3 + 4p^3)$
6. If $k^9 - 3k^9 + 6k^9$ is simplified, what do you get? Detail each step.
7. Simplify the following expression: $4z^6 + 7z^6 - 10z^6 + z^6$
8. **Given** $2x^2 + 5x^3 - 3x^2 + 4x^3$, combine like terms and write the simplified expression.
9. If $6b^5 - 2b^5 + b^5 - 5b^5$, what is the result after simplification? Explain your process.
10. Simplify and explain: $9w^4 + 2w^4 - 11w^4$

Answer Key

$$1. \quad 2x^5 + 3x^5 - x^5 = (2 + 3 - 1)x^5 = 4x^5$$

$$2. \quad 5a^7 - 2a^7 + 4a^7 = (5 - 2 + 4)a^7 = 7a^7$$

$$3. \quad m^4 + 7m^4 - 3m^4 = (1 + 7 - 3)m^4 = 5m^4$$

$$4. \quad 8y^2 - 5y^2 + 2y^2 = (8 - 5 + 2)y^2 = 5y^2$$

$$5. \quad (3p^3 + 2p^3) - (p^3 + 4p^3) = (5p^3) - (5p^3) = 0$$

$$6. \quad k^9 - 3k^9 + 6k^9 = (1 - 3 + 6)k^9 = 4k^9$$

$$7. \quad 4z^6 + 7z^6 - 10z^6 + z^6 = (4 + 7 - 10 + 1)z^6 = 2z^6$$

$$8. \quad 2x^2 + 5x^3 - 3x^2 + 4x^3 = (2 - 3)x^2 + (5 + 4)x^3 = -x^2 + 9x^3$$

$$9. \quad 6b^5 - 2b^5 + b^5 - 5b^5 = (6 - 2 + 1 - 5)b^5 = 0$$

$$10. \quad 9w^4 + 2w^4 - 11w^4 = (9 + 2 - 11)w^4 = 0$$