

Sum of Two Cubes Worksheet

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The formula for the sum of two cubes is: $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

Example: $x^3 + 27 = (x + 3)(x^2 - 3x + 9)$ where **a** = x and **b** = 3

Example: $27m^3 + 64p^6 = (3m + 4p^2)(9m^2 - 12mp^2 + 16p^4)$
where **a** = 3m and **b** = $4p^2$

Practice Exercises:

1) Factor: $x^3 + y^3$

2) Factor: $g^3 + 8$

3) Factor: $y^6 + 27$

4) Factor: $125d^3 + 216$

5) Factor: $8h^3 + 125b^9$

6) Fill in the missing parts: $\underline{\hspace{1cm}} + y^3 = (m + \underline{\hspace{1cm}})(\underline{\hspace{1cm}} - my + \underline{\hspace{1cm}})$

7) Fill in the missing parts: $27r^6 + \underline{\hspace{1cm}} = (\underline{\hspace{1cm}} + \underline{\hspace{1cm}})(\underline{\hspace{1cm}} - 3r^2p + p^2)$

8) Fill in the missing parts: $8g^3 + 27m^3 = (\underline{\hspace{1cm}} + \underline{\hspace{1cm}})(4g^2 - \underline{\hspace{1cm}} + \underline{\hspace{1cm}})$

9) Fill in the missing parts: $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = (d + 4z)(d^2 - 4dz + 16z^2)$

10) Fill in the missing parts: $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = (3r + 2k^2)(\underline{\hspace{1cm}} - \underline{\hspace{1cm}} + \underline{\hspace{1cm}})$

Sum of Two Cubes Worksheet Answers

$$1) \quad x^3 + y^3 = (x + y)(x^2 - xy + y^2)$$

$$2) \quad g^3 + 8 = (g + 2)(g^2 - 2g + 4)$$

$$3) \quad y^6 + 27 = (y^2 + 3)(y^4 - 3y^2 + 9)$$

$$4) \quad 125d^3 + 216 = (5d + 6)(25d^2 - 30d + 36)$$

$$5) \quad 8h^3 + 125b^9 = (2h + 5b^3)(4h^2 - 10b^3h + 25b^6)$$

$$6) \quad m^3 + y^3 = (m + y)(m^2 - my + y^2)$$

$$7) \quad 27r^6 + p^3 = (3r^2 + p)(9r^4 - 3r^2p + p^2)$$

$$8) \quad 8g^3 + 27m^3 = (2g + 3m)(4g^2 - 6gm + 9m^2)$$

$$9) \quad d^3 + 64z^3 = (d + 4z)(d^2 - 4dz + 16z^2)$$

$$10) \quad 27r^3 + 8k^6 = (3r + 2k^2)(9r^2 - 6k^2r + 4k^4)$$