

Difference of Two Cubes Worksheet

By Janine Bouyssounouse

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

Example: $x^3 - 8 = (x - 2)(x^2 + 2x + 4)$ where **a** = x and **b** = 2

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: $g^3 - 27$

3) Factor: $y^6 - 8$

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: $\underline{\hspace{1cm}} - \underline{\hspace{1cm}} = (3r - 2k^2)(\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}})$

Difference of Two Cubes Worksheet Answers

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

$$2) \quad g^3 - 27 = (g - 3)(g^2 + 3g + 9)$$

$$3) \quad y^6 - 8 = (y^2 - 2)(y^4 + 2y^2 + 4)$$

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

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

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

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

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

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

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