

Worksheet 2.3 Factoring Polynomials: Using Special Product Method

Complete the perfect square trinomials.

$$\begin{aligned} a^2 + 2ab + b^2 &= (a + b)^2 \\ a^2 - 2ab + b^2 &= (a - b)^2 \end{aligned}$$

1. $9x^4 + \underline{\hspace{1cm}}x^2 + 16$

4. $x^4 + 6x^2 + \underline{\hspace{1cm}}$

2. $x^8 + 20x^4 + \underline{\hspace{1cm}}$

3. $\underline{\hspace{1cm}}x^6 - 24x^3 + 9$

Choose the correct factor in each polynomial. *Drag and drop it on the blanks.*

$$\begin{aligned} a^2 + 2ab + b^2 &= (a + b)^2 \\ a^2 - 2ab + b^2 &= (a - b)^2 \end{aligned}$$

5. $9x^4 - 12x^2 + 4 = \underline{\hspace{2cm}}$

6. $25x^6 - 60x^3 + 36 = \underline{\hspace{2cm}}$

$$\begin{aligned} a^3 + b^3 &= (a + b)(a^2 - ab + b^2) \\ a^3 - b^3 &= (a - b)(a^2 + ab + b^2) \end{aligned}$$

7. $27x^9 + 64 = \underline{\hspace{2cm}}$

8. $1 - 8x^3 = \underline{\hspace{2cm}}$

$$a^2 - b^2 = (a - b)(a + b)$$

9. $9x^8 - 100 = \underline{\hspace{2cm}}$

10. $4x^4 - 64 = \underline{\hspace{2cm}}$

Possible Answers for #'s 5 - 10

$$(1 - 2x)(1 + 2x + 4x^2)$$

$$(3x^2 - 2)^2$$

$$(3x^4 - 10)(3x^4 + 10)$$

$$(3x^3 + 4)(9x^6 - 12x^3 + 16)$$

$$(2x^2 - 8)(2x^2 + 8)$$

$$(5x^3 - 6)^2$$