

Adding and Subtracting Polynomials

Simplify each expression.

1) $(5 + 5n^3) - (1 - 3n^3)$

$$5 + 5n^3 - 1 + 3n^3$$

$$4 + 8n^3$$

$$8n^3 + 4$$

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

$$x^2 - x + 8x - 2x^2$$

$$-x^2 + 7x$$

5) $(5x^2 + 4) - (5 + 5x^3)$

$$5x^2 + 4 - 5 - 5x^3$$

$$-5x^3 + 5x^2 - 1$$

7) $(8b^3 + 8) - (6 - 7b^3)$

$$8b^3 + 8 - 6 + 7b^3$$

$$15b^3 + 2$$

9) $(10p^4 + 11) - (11p^4 + 13 + 16p^2)$

$$10p^4 + 11 - 11p^4 - 13 - 16p^2$$

$$-p^4 - 16p^2 - 2$$

11) $(10x^4 - 16) + (12 - 6x^3 + 11x^4)$

$$10x^4 - 16 + 12 - 6x^3 + 11x^4$$

$$21x^4 - 6x^3 - 4$$

2) $(6a - 3a^2) + (2a^2 - 3a)$

$$6a - 3a^2 + 2a^2 - 3a$$

$$3a - a^2$$

$$-a^2 + 3a$$

4) $(2a^2 + 4a^3) - (3a^3 + 8)$

$$2a^2 + 4a^3 - 3a^3 - 8$$

$$a^3 + 2a^2 - 8$$

6) $(8n^2 - 2n^3) + (6n^3 - 8n^2)$

$$8n^2 - 2n^3 + 6n^3 - 8n^2$$

$$4n^3$$

8) $(4x^3 - 6) + (5x^3 + 3)$

$$4x^3 - 6 + 5x^3 + 3$$

$$9x^3 - 3$$

10) $(20v^2 - 9v^3) - (7v^3 - 10v^4 - 14v^2)$

$$20v^2 - 9v^3 - 7v^3 + 10v^4 + 14v^2$$

$$10v^4 - 16v^3 + 34v^2$$

12) $(14 + 12a^3) + (17a^4 + 15 - 5a^3)$

$$14 + 12a^3 + 17a^4 + 15 - 5a^3$$

$$17a^4 + 7a^3 + 29$$

binomial · binomial

FOIL

13) $(4p-1)^2$

$(4p-1)(4p-1)$

$16p^2 - 4p - 4p + 1$

$16p^2 - 8p + 1$

15) $(6n+3)(6n-4)$

$36n^2 - 24n + 18n - 12$

$36n^2 - 6n - 12$

17) $(6k+5)(5k+5)$

$30k^2 + 30k + 25k + 25$

$30k^2 + 55k + 25$

19) $(4a+2)(6a^2-a+2)$

$24a^3 - 4a^2 + 8a$
 $12a^2 - 2a + 4$

$24a^3 + 8a^2 + 6a + 4$

21) $(7r^2-6r-6)(2r-4)$

$14r^3 - 12r^2 - 12r$
 $-28r^2 + 24r + 24$

$14r^3 - 40r^2 + 12r + 24$

23) $(6n^2-6n-5)(7n^2+6n-5)$

14) $(7x-6)(5x+6)$

$35x^2 + 42x - 30x - 36$

$35x^2 + 12x - 36$

First
Outer
Inner
Last

16) $(8n+1)(6n-3)$

$48n^2 - 24n + 6n - 3$

$48n^2 - 18n - 3$

18) $(3x-4)(4x+3)$

$12x^2 + 9x - 16x - 12$

$12x^2 - 7x - 12$

20) $(7k-3)(k^2-2k+7)$

$7k^3 - 14k^2 + 49k$
 $-3k^2 + 6k - 21$

$7k^3 - 17k^2 + 55k - 21$

22) $(n^2+6n-4)(2n-4)$

$2n^3 + 12n^2 - 8n$
 $-4n^2 - 24n + 16$

$2n^3 + 8n^2 - 32n + 16$