

Name: _____

Adding and Subtracting Polynomials

Find the sum

1) $(x + 4) + (2x + 7)$

2) $(z^2 + 3z + 9) + (-2z^2 + 5)$

3) $(3a^2 + 1) + (a^2 - 5)$

4) $(9a - 7) + (a^2 - 2a + 8)$

5) $(x^2 + x + 15) + (x^2 + x + 6)$

6) $(-x^2 - 9x) + (x^2 + 3x - 8)$

7) $(y^2 - 2y + 1) + (4y^3 - y - 5)$

8) $(-12z^2 - z + 3) + (2z^2 + 6z - 1)$

9) $(y^4 - 5y^2) + (y^4 + 2y^2 - 9)$

10) $(13m^3 + 12m) + (4m^2 - 8m + 5)$

11) $(-4z^3 + 6z - 8) + (z^2 - 3z + 5)$

12) $(3m^2 + 1) + (m^2 - 4m)$

Find the difference

13) $(10z - 1) - (z + 4)$

14) $(x^2 + 7x - 3) - (x^2 + 1)$

15) $(b^2 + 9) - (3b^2 + b + 2)$

16) $(5b^2 + 6b + 7) - (b^2 + 4b - 6)$

17) $(3b^2 - 5b + 1) - (b^2 + b - 1)$

18) $(8a^2 + 7a + 2) - (5a^2 + 4)$

19) $(5a + 2) - (3a^2 + 1)$

20) $(b^3 - 5b^2 + b) - (-2b^3 - b^2 - b)$

21) $(4b^2 + 3b + 5) - (6b^2 + 7)$

22) $(c^2 - c + 6) - (-3c^3 + c - 6)$

23) $(4c^3 - 7c - 2) - (c^2 + 6c - 5)$

24) $(8d^4 + 5) - (7d^4 - 1)$

25) $(d^2 + 5d + 2) - (3d^2 + d + 2)$

26) You want to cut 12 circles from a rectangular sheet of leather that measures $6r$ inches by $10r$ inches. Each circle has a radius of r inches.

- Write a polynomial expression for the area of the rectangular sheet.
- Write a polynomial expression for the combined area of the 12 circles. Use 3.14 for π .
- What area of the rectangular sheet is unused?
- Could you cut more than 12 circles from the rectangular sheet? Draw a diagram and explain your answer.

Find the sum or difference.

27) $(13x - 4y) + (2x + 5y)$

28) $(-2r + 3s + 17t) + (15r - 7t)$

29) $(3cd + 2) + (-9cd - 4)$

30) $(8a^2b - 7a) + (2a^2b - 9b)$

31) $(m - 8n) - (-3m + 9n)$

32) $(6a + 7b) - (11a + 5b + 14c)$

33) $(2rs + 4r - 3s) - (13rs + 2r)$

34) $(2x^2 + 7y^2) - (x^2 - y^2 - 18)$

35) What polynomial do you add to $x^2 + 5x + 1$ to get a sum of $4x^2 - 3$?

36) Suppose two polynomials have the same degree. Will their sum have this degree also? Give an example to support your answer.