

PRODUCTS OF POLYNOMIALS
HANDOUT FOR 9 ENRICHED

Class work:

Expand and simplify the following:

1) $(3x - 4y)(4x + y)$

2) $(3x^2 - 2x)(5x^2 + 7x)$

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

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

5) $2(x + 4)(x - 3) - 3(2x + 5)(x - 4)$ Hint: Don't forget to distribute the negative sign!

6) $2x(9x + 4y)(x - 2y) + 4(2x^2 + 7y)(3x^2 - 3y)$

7) $2x(9x + 4y)(x - 2y) - 4(2x^2 + 7y)(3x^2 - 3y)$

8) $(2x - 3)^2 - 2x(3 + 2x)$ Hint: write $(\dots)^2$ as $(\dots)(\dots)$

9) $3(2t - 5)(t - 4) - 3(5y - 3)(t + 4)$

10) $2(m - 3)(m - 4) - 3(m + 5)^2 - 2(2m - 1)(2m + 1)$

11) $3(2m + 3)^2 - (m - 5)^2 - (2m - 4)(m - 5)$

12) $5x^2 - (x - 3)^2 - 2(x^2 - 5x) + 2(2x - 3)^2$

Answers: 9) $-9t^2 - 90t + 96$
12) $10x^2 - 8x + 9$

10) $-9m^2 - 44m - 49$

11) $9m^2 + 60m - 18$

Please see the **homework** on the other side

Homework:

Expand and simplify the following:

1) $(2m - 3n)(5m + 2n)$

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

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

4) $3(x - 4)(x - 1) + 2(2x + 5)(x - 4)$

5) $3(x - 4)(x - 1) - 2(2x + 5)(x - 4)$ Hint: Don't forget to distribute the negative sign!

6) $3y(x + 4y)(2x - y) + 2(2x - 5y^2)(3x - 3y)$

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

8) $(x + 2y)^2 + (x + 2y)(x - 2y)$ Hint: write $(\dots)^2$ as $(\dots)(\dots)$

9) $5(2x - 5)(2x + 5) - 4(x - 2)(x + 3) - (2x + 1)^2$

10) $(1 - 3x)(2 + 5x) - (x - 4)(2x - 5) - (2x + 3)^2$

11) $(2w + 3x)(w - x) - 4(w - 2x)^2 + 5(w^2 - x^2)$

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

Answers: 1) $10m^2 - 11mn - 6n^2$ 2) $15x^4 - 28x^3 + 5x^2$ 3) $-3x^4 + x^3 + 11x^2 - 3x - 6$
4) $7x^2 - 21x - 28$ 5) $-x^2 - 9x + 52$ 6) $6x^2y - 9xy^2 + 18y^3 + 12x^2 - 12xy$
7) $6x^2y + 51xy^2 - 42y^3 - 12x^2 + 12xy$ 8) $2x^2 + 4xy$ 9) $12x^2 - 8x - 102$
10) $-21x^2 - 27$ 11) $3w^2 + 17wx - 24x^2$ 12) $-2x^3 - 8x^2 + 27x + 8$