

Mutilpying Polynomials

Date _____

Find each product.

1) $5(6b + 3)$

2) $8(6r + 3)$

3) $2(8x + y)$

4) $5mn(3m + 2n)$

5) $7(x - 7y)$

6) $2mn(8m - 2n)$

7) $(4x - 2y)(6x + 6y)$

8) $(6x + 3y)(4x - 7y)$

9) $(2x + 5y)(7x - 8y)$

10) $(3x + 6y)(5x - 8y)$

11) $(5x - 4y)(5x^2 - 4xy + 6y^2)$

12) $(8x - 7y)(6x^2 + 8xy + 3y^2)$

13) $(6a^2 - 2a - 3)(8a + 2)$

14) $(2k^2 + 8k - 2)(7k + 4)$

15) $(7a^2 - 2ab + 2b^2)(a^2 - 2ab - 8b^2)$

16) $(x^2 - 4xy + 2y^2)(x^2 - 2xy - 7y^2)$

Multiplying Polynomials

Date _____

Find each product.

1) $5(6b + 3)$

$$= 30b + 15$$

2) $8(6r + 3)$

$$= 48r + 24$$

3) $2(8x + y)$

$$= 16x + 2y$$

4) $5mn(3m + 2n)$

$$= 15m^2n + 10mn^2$$

5) $7(x - 7y)$

$$= 7x - 49y$$

6) $2mn(8m - 2n)$

$$= 16m^2n - 4mn^2$$

7) $(4x - 2y)(6x + 6y)$

$$24x^2 + 24xy - 12xy - 12y^2$$

$$24x^2 + 12xy - 12y^2$$

9) $(2x + 5y)(7x - 8y)$

$$= 14x^2 - 16xy + 35xy - 40y^2$$

$$= 14x^2 + 19xy - 40y^2$$

11) $(5x - 4y)(5x^2 - 4xy + 6y^2)$

$$= 25x^3 - 20x^2y + 30xy^2 - 20x^2y + 16xy^2 - 24y^3$$

$$= 25x^3 - 40x^2y + 46xy^2 - 24y^3$$

13) $(6a^2 - 2a - 3)(8a + 2)$

15) $(7a^2 - 2ab + 2b^2)(a^2 - 2ab - 8b^2)$

8) $(6x + 3y)(4x - 7y)$

$$= 24x^2 - 42xy + 12xy - 21y^2$$

$$= 24x^2 - 30xy - 21y^2$$

10) $(3x + 6y)(5x - 8y)$

$$= 15x^2 - 24xy + 30xy - 48y^2$$

$$= 15x^2 + 6xy - 48y^2$$

12) $(8x - 7y)(6x^2 + 8xy + 3y^2)$

14) $(2k^2 + 8k - 2)(7k + 4)$

16) $(x^2 - 4xy + 2y^2)(x^2 - 2xy - 7y^2)$

$$12) (8x - 7y)(6x^2 + 8xy + 3y^2)$$

$$= 48x^3 + 64x^2y + 24xy^2 - 42x^2y - 56xy^2 - 21y^3$$
$$= 48x^3 + 22x^2y - 32xy^2 - 21y^3$$

$$13) (6a^2 - 2a - 3)(8a + 2)$$

$$= 48a^3 + 12a^2 - 16a^2 - 4a - 24a - 6$$

$$= 48a^3 - 4a^2 - 28a - 6$$

$$14) (2k^2 + 8k - 2)(7k + 4)$$

$$= 14k^3 + 8k^2 + 56k^2 + 32k - 14k - 8$$

$$= 14k^3 + 64k^2 + 18k - 8$$

$$15) (7a^2 - 2ab + 2b^2)(a^2 - 2ab - 8b^2)$$

$$= 7a^4 - 14a^3b - 56a^2b^2 - 2a^3b + 4a^2b^2 + 16ab^3 + 2a^2b^2 - 4ab^3 - 16b^4$$
$$= 7a^4 - 16a^3b - 50a^2b^2 + 12ab^3 - 16b^4$$

$$16) (x^2 - 4xy + 2y^2)(x^2 - 2xy - 7y^2)$$

$$x^4 - 2x^3y - 7x^2y^2 - 4x^3y + 8x^2y^2 + 28xy^3 + 2x^2y^2 - 4xy^3 - 14y^4$$
$$= x^4 - 6x^3y + 3x^2y^2 + 24xy^3 - 14y^4$$

$$\begin{array}{l} (3w-5)^2 \\ (3w-5)(3w-5) \\ = 9w^2 - 15w - 15w + 25 \\ = \underline{9w^2 - 30w + 25} \end{array} \left. \vphantom{\begin{array}{l} (3w-5)^2 \\ (3w-5)(3w-5) \\ = 9w^2 - 15w - 15w + 25 \\ = \underline{9w^2 - 30w + 25} \end{array}} \right\} \begin{array}{l} 5(7w+1)^2 \\ = 5(49w^2 + 14w + 1) \\ = 245w^2 + 70w + 5 \end{array}$$

Now the grand finale!!!

$$-4x^2 - 13x - 10$$

- Put it all together to expand and simplify

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

$$2x^2 - 5x + 6x - 15 + 2(x^2 - 2x + 1) - (8x^2 - 2x + 12x - 3)$$

$$\underline{2x^2} + \underline{x} - 15 + \underline{2x^2} - \underline{4x} + \underline{2} - \underline{8x^2} + \underline{2x} - \underline{12x} + \underline{3}$$

$$= -4x^2 - 13x - 10$$

Redemption Time!!

Expand and simplify the following expression:

$$(2a - 5)(3a + 1) - 2(5a - 3)^2 + 4(6a + 5)(a - 9)$$