



Please copy and complete

Simplify each of the following:

$$1) 2x^3 - 5x + 7 + 6x^3 + x + 1$$

$$2) -7n^3y - 5n^2y^3 + 2ny^2 - n^2y^3 - n^3y - 12ny^2$$

Warm Up



Expand and simplify when possible

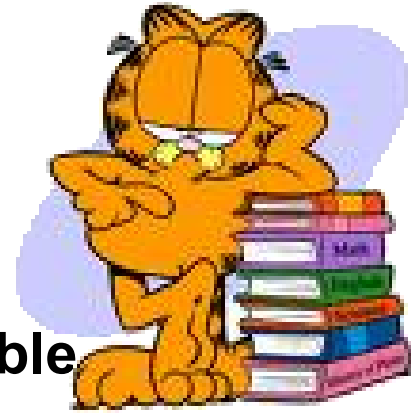
1) $(5x^2 + 7y^2)(-3x^2 - 2y^2)$

2) 2^3

3) x^5

4) $(\text{😊})^4$

Warm Up



Expand and simplify when possible

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

$$-15x^4 - 10x^2y^2 - 21x^2y^2 - 14y^4$$

$$-15x^4 - 31x^2y^2 - 14y^4$$

$$2) 2^3 = (2)(2)(2)$$

$$3) x^5 = (x)(x)(x)(x)(x)$$

$$4) (\text{😊})^4 = (\text{😊})(\text{😊})(\text{😊})(\text{😊})$$

$$\begin{aligned}
 \text{b) } & (2x + 3)(5x + 4) + (x - 4)(3x - 7) \\
 & (10x^2 + 8x + 15x + 12) - (3x^2 - 7x - 12x + 28) \\
 & (10x^2 + 23x + 12) - (3x^2 - 19x + 28) \\
 & \quad - 3x^2 + 19x - 28 \\
 & 10x^2 - 3x^2 + 23x + 19x + 12 - 28 \\
 & \quad 7x^2 + 42x - 16
 \end{aligned}$$

18. Expand and simplify.

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

$$(x-2)(x-2)(x-2)$$

$$x^2 - 2x - 2x + 4$$

3.7 Multiplying Polynomials

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

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

$$x^3 - 6x^2 + 12x - 8$$

$$\begin{array}{ccc} (2) & (5) & (8) \\ \underbrace{\hspace{1.5cm}} & & \\ (10) & (8) & \\ & 80 & \end{array}$$



$$b) (2y + 5)^3$$

b) $(2y + 5)^3$



$$(2y + 5)(2y + 5)(2y + 5)$$

Diagram showing the first two binomials being multiplied. A green bracket spans the first two terms, and blue arrows indicate the FOIL process: 2y * 2y, 2y * 5, 5 * 2y, and 5 * 5.

$$4y^2 + 10y + 10y + 25$$

$$(4y^2 + 20y + 25)(2y + 5)$$

Diagram showing the multiplication of the quadratic trinomial by the remaining binomial. Red arrows show 4y^2 * 2y, 4y^2 * 5, 20y * 2y, and 20y * 5. Green arrows show 25 * 2y and 25 * 5.

$$8y^3 + 10y^2 + 10y^2 + 125$$

The terms 10y^2 and 10y^2 are highlighted in yellow and orange respectively, indicating they will be combined.

$$8y^3 + 20y^2 + 150y + 125$$

19. Expand and simplify.

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



b) $-3r(r - 1)(2r + 1)$



1

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



d) $-xy(2x + 5)(4x - 5)$



3.7 Multiplying Polynomials

$$a) \quad 2a(2a-1)(3a+2)$$

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

$$12a^3 + 8a^2 - 6a^2 - 4a$$

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

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

$$-6x^4 + 15x^2y + 3x^2 + 4x^2y - 10y^2 - 2y - 8x^2 + 20y + 4$$

$$-6x^4 + 19x^2y - 5x^2 + 18y - 10y^2 + 4$$



Numbers, Relations & Functions 10

Name _____

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



Numbers, Relations & Functions 10

Name _____

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

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

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

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

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

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

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

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

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

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

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

$$48x^3 + 22x^2y - 32xy^2 - 21y^3$$

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

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

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

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

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

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

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

$$x^4 - 6x^3y + 3x^2y^2 + 24xy^3 - 14y^4$$