

La Vitola Katia

Classe I<sup>a</sup>B

$$10) 4x^3 - \{2xy \cdot (2x - 3y) - [2x^2 \cdot (2y - 3x) + 2x \cdot (x^2 - 3y^2)]\} =$$

$$= 4x^3 - \{4x^2y - 6xy^2 - [4x^2y - 6x^3 + 2x^3 - 6xy^2]\} =$$

$$= 4x^3 - \{4x^2y - 6xy^2 - [4x^2y - 4x^3 - 6xy^2]\} =$$

$$= 4x^3 - \{4x^2y - 6xy^2 - 4x^2y + 4x^3 + 6xy^2\} =$$

$$= 4x^3 - \{+4x^3\} =$$

$$= 4x^3 - 4x^3 = 0.$$

$$14) -\frac{2}{5} a^{n+2} b^3 \cdot (7a^m - 3a^{m-1}b + 2a^{m-2}b^2 - 5) =$$

$$= -\frac{14}{5} a^{m+n+2} b^3 + \frac{6}{5} a^{m+n+2-1} b^4 - \frac{4}{5} a^{m+n+2-2} b^{4+3} + 2a^{n+2} b^3 =$$

$$= -\frac{14}{5} a^{m+n+2} b^3 + \frac{6}{5} a^{m+n+1} b^4 - \frac{4}{5} a^{m+n} b^7 + 2a^{n+2} b^3.$$

$$18) 2ab \cdot (3a - 2b) - 3b^2 \cdot (a + b) - b \cdot (18a^2 - 3b^2) + 7ab \cdot (2a + b) =$$

$$= 18a^2b - 4ab^2 - 3ab^2 - 3b^3 - 18a^2b + 3b^3 + 14a^2b + 7ab^2 =$$

$$= 14a^2b.$$

$$22) x \cdot (x - y) - y \cdot (x - y) + 2xy - (a^2 - b^2) + a \cdot (a + b) - b \cdot (a + b) =$$

$$= x^2 - xy - xy + y^2 + 2xy - a^2 + b^2 + a^2 + ab - ab - b^2 =$$

$$= x^2 + y^2.$$



$$26) \frac{a}{3} \cdot (2x-a) \cdot (x-a) - \frac{2}{3} a \cdot (x^2 + 2a^2) + a^2 \cdot (x+a) =$$

$$= \frac{a}{3} \cdot (2x^2 - 2ax - ax + a^2) - \frac{2}{3} ax^2 - \frac{4}{3} a^3 + a^2x + a^3 =$$

$$= \frac{2}{3} ax^2 - \frac{2}{3} a^2x - \frac{1}{3} a^2x + \frac{1}{3} a^3 - \frac{2}{3} ax^2 - \frac{4}{3} a^3 + a^2x + a^3 =$$

$$= \frac{-2-1+3}{3} a^2x + \frac{1-4+3}{3} a^3 = 0$$

$$30) x^2 \cdot (y^2 - 12) - 2x \cdot \left\{ \frac{3}{4}y + 2x \cdot \left[ -3 - \frac{1}{2}y \cdot (3x - \frac{1}{2}y) \right] + 3x^2y \right\} + \frac{3}{2}xy =$$

$$= x^2y^2 - 12x^2 - 2x \cdot \left\{ \frac{3}{4}y + 2x \cdot \left[ -3 - \frac{3}{2}xy + \frac{1}{4}y^2 \right] + 3x^2y \right\} + \frac{3}{2}xy =$$

$$= x^2y^2 - 12x^2 - 2x \cdot \left\{ \frac{3}{4}y - 6x - 3x^2y + \frac{1}{2}xy^2 + 3x^2y \right\} + \frac{3}{2}xy =$$

$$= x^2y^2 - 12x^2 - \frac{3}{2}xy + 12x^2 - x^2y^2 + \frac{3}{2}xy = 0$$

$$34) (3a - 4b) \cdot (a - b) =$$

$$= 3a^2 - 3ab - 4ab + 4b^2 =$$

$$= 3a^2 - 7ab + 4b^2$$

$$(4b - 5c) \cdot (3b + 4c) =$$

$$= 12b^2 + 16bc - 15bc - 20c^2 =$$

$$= 12b^2 + bc - 20c^2$$

$$38) (a - m) \cdot (a^5 + a^4m + a^3m^2 + a^2m^3 + am^4 + m^5) =$$

$$= a^6 + a^5m + a^4m^2 + a^3m^3 + a^2m^4 + am^5 - a^5m - a^4m^2 - a^3m^3 - a^2m^4 - am^5 - m^6 =$$

$$= a^6 - m^6$$

$$42) (a^m + 2a^{m+1} - 3a^{m+2} - 1) \cdot (a+1) =$$

$$= a^{m+1} + 2a^{m+2} - 3a^{m+3} - a + a^m + 2a^{m+1} - 3a^{m+2} - 1 =$$

$$= 3a^{m+1} - a^{m+2} - 3a^{m+3} - a + a^m - 1$$



$$46) 4y^2 + (3x+2y) \cdot (4x-6y) - (2x-y) \cdot (6x+8y) + 20xy =$$

$$= 4y^2 + 12x^2 - 18xy + 8xy - 12y^2 - (12x^2 + 16xy - 6xy - 8y^2) + 20xy =$$

$$= 4y^2 + 12x^2 - 18xy + 8xy - 12y^2 - (12x^2 + 10xy - 8y^2) + 20xy =$$

$$= \cancel{4y^2} + \cancel{12x^2} - \cancel{18xy} + \cancel{8xy} - \cancel{12y^2} - \cancel{12x^2} - \cancel{10xy} + \cancel{8y^2} + 20xy = 0.$$

$$50) (a+b+c) \cdot (a+b-c) - (a-b+c) \cdot (a+b+c) =$$

$$= a^2 + ab - ac + ab + b^2 - bc + ac + bc - c^2 - (-a^2 + ab + ac + ab - b^2 - bc - ac + bc + c^2) =$$

$$= \cancel{a^2} + \cancel{ab} - \cancel{ac} + \cancel{ab} + \cancel{b^2} - \cancel{bc} + \cancel{ac} + \cancel{bc} - c^2 + a^2 - \cancel{ab} - \cancel{ac} - \cancel{ab} + \cancel{b^2} + \cancel{bc} + \cancel{ac} + \cancel{-bc} - c^2 =$$

$$= 2a^2 + 2b^2 - 2c^2.$$

$$54) (a+b) \cdot [(a-2b) \cdot (2a+b) + 3b \cdot (a+b) - a^2] - (a^2+b^2) \cdot (a+b) =$$

$$= (a+b) \cdot [2a^2 + ab - 4ab - 2b^2 + 3ab + 3b^2 - a^2] - (a^3 + a^2b + ab^2 + b^3) =$$

$$= (a+b) \cdot [2a^2 + \cancel{ab} - \cancel{4ab} - 2b^2 + \cancel{3ab} + 3b^2 - a^2] - a^3 - a^2b - ab^2 - b^3 =$$

$$= (a+b) \cdot [a^2 + b^2] - a^3 - a^2b - ab^2 - b^3 =$$

$$= \cancel{a^3} + \cancel{ab^2} + \cancel{a^2b} + \cancel{b^3} - \cancel{a^3} - \cancel{a^2b} - \cancel{ab^2} - \cancel{b^3} = 0.$$

$$58) [2x - x \cdot (x^2 - x + 1)] \cdot (x^2 + x) - x \cdot [1 + x \cdot (1 + 2x)] + x \cdot (x^4 + 1) =$$

$$= [2x - x^3 + x^2 - x] \cdot (x^2 + x) - x \cdot [1 + x + 2x^2] + x^5 + x =$$

$$= \cancel{2x^3} + \cancel{2x^2} - \cancel{x^5} - \cancel{x^4} + \cancel{x^4} + \cancel{x^3} - \cancel{x^3} - \cancel{x^2} - \cancel{x} - \cancel{x^2} - \cancel{2x^3} + \cancel{x^5} + x = 0.$$