

Tarca

$$1. (a^2 - b^3)^5$$

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

$$1(a^{10}) - 5(a^8)(b^3) + 10(a^6)(b^6) - 10(a^4)(b^9) + 5(a^2)(b^{12}) - 1(b^{15})$$

$$a^{10} - 5a^8b^3 + 10a^6b^6 - 10a^4b^9 + 5a^2b^{12} - 1b^{15}$$

$$2. (m^3 + 2n^4)^7$$

$$1(m^3)^7 + 7(m^3)^6(2n^4) + 21(m^3)^5(2n^4)^2 + 35(m^3)^4(2n^4)^3 + 35(m^3)^3(2n^4)^4 + 21(m^3)^2(2n^4)^5 + 7(m^3)(2n^4)^6 + 1(2n^4)^7$$

$$1(m^{21}) + 7(m^{18})(2n^4) + 21(m^{15})(4n^8) + 35(m^{12})(8n^{12}) + 35(m^9)(16n^{16}) + 21(m^6)(32n^{20}) + 7(m^3)(64n^{24}) + 1(128n^{28})$$

$$m^{21} + 14m^{18}n^4 + 84m^{15}n^8 + 280m^{12}n^{12} + 560m^9n^{16} + 672m^6n^{20} + 128m^3n^{24} + 128n^{28}$$

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

$$1(3x)^4 - 4(3x)^3(2y) + 6(3x)^2(2y)^2 - 4(3x)(2y)^3 + 1(2y)^4$$

$$1(81x^4) - 4(27x^3)(2y) + 6(9x^2)(4y^2) - 4(3x)(8y^3) + 1(16y^4)$$

$$81x^4 - 108x^3y + 216x^2y^2 - 96xy^3 + 16y^4$$

$$(5m - 2n)^5$$

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

$$1(3,125m^5) - 5(6,250m^4)(2n) + 10(125m^3)(4n^2) - 10(25m^2)(8n^3) + 5(5m)(16n^4) - 1(32n^5)$$

$$3,125m^5 - 6,250m^4n + 5,000m^3n^2 - 2,000m^2n^3 + 400mn^4 - 32n^5$$

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

$$1(2x^3)^6 - 6(2x^3)^5(3y^4) + 15(2x^3)^4(3y^4)^2 - 20(2x^3)^3(3y^4)^3 \\ + 15(2x^3)^2(3y^4)^4 - 6(2x^3)(3y^4)^5 + 1(3y^4)^6$$

$$1(64x^{18}) - 6(32x^{15})(3y^4) + 15(16x^{12})(9y^8) - 20(8x^9)(27y^{12}) \\ + 15(4x^6)(81y^{16}) - 6(2x^3)(243y^{20}) + 1(729y^{24})$$

$$64x^{18} - 576x^{15}y^4 + 2,160x^{12}y^8 - 4,320x^9y^{12} + 4,860x^6y^{16} \\ - 2,916x^3y^{20} + 729y^{24}$$