

$$\langle \text{Tr}(X) \rangle = xy$$

$$\langle \text{Tr}(X^2) \rangle = (x+y)xy + bxy$$

$$\langle \text{Tr}(X^3) \rangle = (x+y)^2xy + x^2y^2 + \alpha xy + 3b(x+y)xy + 2b^2xy$$

$$\langle \text{Tr}(X^4) \rangle = (x+y)^3xy + 3(x+y)x^2y^2 + 5\alpha(x+y)xy + 6b(x+y)^2xy + 5bx^2y^2 + 7\alpha bxy + 11b^2(x+y)xy + 6b^3xy$$

$$\langle \text{Tr}(X^5) \rangle = (x+y)^4xy + 6(x+y)^2x^2y^2 + 2x^3y^3 + 15\alpha(x+y)^2xy + 10\alpha x^2y^2 + 8\alpha^2xy + 10b(x+y)^3xy + 25b(x+y)x^2y^2 + 55\alpha b(x+y)xy + 35b^2(x+y)^2xy + 25b^2x^2y^2 + 46\alpha b^2xy + 50b^3(x+y)xy + 24b^4xy$$

$$\langle \text{Tr}(X^6) \rangle = (x+y)^5xy + 10(x+y)^3x^2y^2 + 10(x+y)x^3y^3 + 35\alpha(x+y)^3xy + 70\alpha(x+y)x^2y^2 + 84\alpha^2(x+y)xy + 15b(x+y)^4xy + 75b(x+y)^2x^2y^2 + 22bx^3y^3 + 238\alpha b(x+y)^2xy + 142\alpha bx^2y^2 + 144\alpha^2bxy + 85b^2(x+y)^3xy + 182b^2(x+y)x^2y^2 + 505\alpha b^2(x+y)xy + 225b^3(x+y)^2xy + 141b^3x^2y^2 + 326\alpha b^3xy + 274b^4(x+y)xy + 120b^5xy$$

$$\langle \text{Tr}(X^7) \rangle = (x+y)^6xy + 15(x+y)^4x^2y^2 + 30(x+y)^2x^3y^3 + 5x^4y^4 + 70\alpha(x+y)^4xy + 280\alpha(x+y)^2x^2y^2 + 70\alpha x^3y^3 + 469\alpha^2(x+y)^2xy + 245\alpha^2x^2y^2 + 180\alpha^3xy + 21b(x+y)^5xy + 175b(x+y)^3x^2y^2 + 154b(x+y)x^3y^3 + 756\alpha b(x+y)^3xy + 1351\alpha b(x+y)x^2y^2 + 1995\alpha^2b(x+y)xy + 175b^2(x+y)^4xy + 749b^2(x+y)^2x^2y^2 + 196b^2x^3y^3 + 2912\alpha b^2(x+y)^2xy + 1575\alpha b^2x^2y^2 + 1958\alpha^2b^2xy + 735b^3(x+y)^3xy + 1379b^3(x+y)x^2y^2 + 4662\alpha b^3(x+y)xy + 1624b^4(x+y)^2xy + 910b^4x^2y^2 + 2556\alpha b^4xy + 1764b^5(x+y)xy + 720b^6xy$$