

$$\langle \text{Tr}(X^2) \rangle = bn + n^2$$

$$\langle \text{Tr}(X^4) \rangle = (\alpha + 3b^2)n + 5bn^2 + 2n^3$$

$$\langle \text{Tr}(X^6) \rangle = (13\alpha b + 15b^3)n + (10\alpha + 32b^2)n^2 + 22bn^3 + 5n^4$$

$$\langle \text{Tr}(X^8) \rangle = (21\alpha^2 + 160\alpha b^2 + 105b^4)n + (215\alpha b + 260b^3)n^2 + (70\alpha + 234b^2)n^3 + 93bn^4 + 14n^5$$

$$\langle \text{Tr}(X^{10}) \rangle = (753\alpha^2 b + 2136\alpha b^3 + 945b^5)n + (483\alpha^2 + 3811\alpha b^2 + 2589b^4)n^2 + (2200\alpha b + 2750b^3)n^3 + (420\alpha + 1450b^2)n^4 + 386bn^5 + 42n^6$$

$$\langle \text{Tr}(X^{12}) \rangle = (1485\alpha^3 + 20175\alpha^2 b^2 + 31701\alpha b^4 + 10395b^6)n + (23178\alpha^2 b + 67549\alpha b^3 + 30669b^5)n^2 + (6468\alpha^2 + 52388\alpha b^2 + 36500b^4)n^3 + (17905\alpha b + 22950b^3)n^4 + (2310\alpha + 8178b^2)n^5 + 1586bn^6 + 132n^7$$

$$\langle \text{Tr}(X^{14}) \rangle = (101673\alpha^3 b + 505167\alpha^2 b^3 + 523713\alpha b^5 + 135135b^7)n + (56628\alpha^3 + 786693\alpha^2 b^2 + 1262479\alpha b^4 + 422232b^6)n^2 + (396732\alpha^2 b + 1180410\alpha b^3 + 546476b^5)n^3 + (66066\alpha^2 + 546273\alpha b^2 + 388136b^4)n^4 + (127036\alpha b + 166110b^3)n^5 + (12012\alpha + 43400b^2)n^6 + 6476bn^7 + 429n^8$$