

SOME CONNECTIONS BETWEEN ALGEBRAIC EXPRESSIONS AND SEQUENCES : PART III

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Use the formulas from the handout entitled (Some Connections between Algebraic Expressions and Sequences : Part II) and the techniques we learned in class to find the coefficients in the following generating functions.

- (1) coefficient of q^8 in $2q/(1-q)^2$
- (2) coefficient of q^7 in $1/(1+2q)^3$
- (3) coefficient of q^4 in $(1+2q)^3$
- (4) coefficient of q^7 in $(1-q^3)(1-q^3)/(1-q)^2$
- (5) coefficient of q^{10} in $2/(1-q)^3$
- (6) coefficient of q^6 in $3/(1-2q)$
- (7) coefficient of q^3 in $(1+5q)(1+q)^3$
- (8) coefficient of q^7 in $2q^2/(1-q)^3$
- (9) coefficient of q^6 in $(q+q^2)/(1-q)^3$
- (10) coefficient of q^{20} in $(1-q^2)(1-q^3)(1-q^4)/(1-q)^3$