

WORKSHEET V: TAKING COEFFICIENTS IN GENERATING FUNCTIONS

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Use the formulas from the handout entitled “WORKSHEET IV: examples of generating functions” and the techniques we learned in class to find the coefficients in the following generating functions.

- (1) coefficient of q^7 in $2q^2/(1-q)^5$
- (2) coefficient of q^8 in $(1+q+2q^2)/(1-q)^2$
- (3) coefficient of q^7 in $1/(1+2q)^3$
- (4) coefficient of q^4 in $(1+q)/(1-q-q^2)$
- (5) coefficient of q^7 in $(1-q^7)(1-q^3)/(1-q)^2$
- (6) coefficient of q^{10} in $1/(1-q-q^2)$
- (7) coefficient of q^6 in $1/((1-2q)(1-q^3))$
- (8) coefficient of q^3 in $(1+5q)(1+q)^3$
- (9) coefficient of q^7 in $(1+5q)(1+q)^3$
- (10) coefficient of q^6 in $(q+q^2)/(1-q)^3$
- (11) coefficient of q^{12} in $(1-q^4)/(1-q)^3$