WORKSHEET V: TAKING COEFFICIENTS IN GENERATING FUNCTIONS

FEBRUARY 23, 2006

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 $1/(1+2q)^3$

- (3) coefficient of q^{i} 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 $(1-q^{4})/(1-q)^{3}$