

## 8D Finding Coefficients in Expressions

1. Find the coefficient of  $x^4$  in  $(2 + 3x)^{10}$
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
2. Find the coefficient of  $x^3$  in  $(2 + x)(3 - 2x)^7$
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
3. If  $g(x) = (1 + kx)^{10}$ , where  $k$  is a constant, and the coefficient of  $x^3$  is 15, find the value of  $k$ .

4.

a) Write down the first three terms, in ascending powers of  $x$ , of the binomial expansion of  $(1 + qx)^8$ , where  $q$  is a non-zero constant.

b) Given that, in the expansion of  $(1 + qx)^8$ , the coefficient of  $x$  is  $-r$  and the coefficient of  $x^2$  is  $7r$ , find the values of  $q$  and  $r$