Method of undetermined coefficients or "judicious guessing"

Find the general solution of y'' - 5y' + 6y = g(t) for each of the following nonhomogeneous terms.

1.  $g(t) = 7e^{4t}$ 

2.  $g(t) = 7e^{3t}$ 

3.  $g(t) = 4e^{2t}\cos 5t$ 

4.  $g(t) = t^2$ 

5. 
$$g(t) = 3t^2 e^{6t}$$

6.  $g(t) = 2e^{5t} + e^{4t}$