Differential Equations Ch7 3: Particular Integral and General Solution

To solve the second order differential equation

$$a\frac{d^2y}{dx^2} + b\frac{dy}{dx} + c = f(x)$$

Solve the complementary function $a\frac{d^2y}{dx^2} + b\frac{dy}{dx} + c = 0$

And find the particular integral of the form

$f(x)$	PI
p	λ
$p + qx$	$\lambda + \mu x$
$p + qx + rx^2$	$\lambda + \mu x + \nu x^2$
pe^{kx}	λe^{kx}
$p\cos\omega x + q\sin\omega x$	$\lambda\cos\omega x + \mu\sin\omega x$

Find the general solution to the differential equation

$$\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = f(x)$$

For $f(x) =$

a. 3
b. 2x
c. $3x^2$
d. e^x
e. 13sin3x