Complete the calculation to find the product:

$$(x+4)\left(x^2+3x+5\right) = x\left(x^2+3x+5\right)+4\left(x^2+3x+5\right)$$

$$= x\left(x^2\right)+x(3x)+x(5)+4\left(x^2\right)+4(3x)+4(5)$$