Unit 2 Lesson 6 a device that modifies a function · A few examples of operators exist · Shift by air Ver(f(X)) = f(X - a)· Multiply by fai new(f, f2)= f,(x) f2(x) and more, but motimecrtartyar · Differentiate: 0 f(x) = f(x); 00 f(x) = f(x); etc · We define roles: If p(0) and q(0) act on golynomials, Then for potyony furet (PCD) + QCD) 4 = PCD) 4 + QCD) 4 · P(0)((, flot(29(x)) = P(0)cf(x) + P(0)c2(x)  $P(0) = 9(0)h(0) \Rightarrow P(0)u = 9(0)h(0)u$ 

Example Problem
By super position, spllt into the DEs X +x= +2 6 p o x+x=(0s(2+4)); For the former makeansatz Xe = At + Bt + C; then 2A+A+++(=+2 => A=1, B=0, (=2)  $X_{P,1}=t^2-2$ By Complex replacement, we get  $X_{P,2}=\frac{-1}{3}(os(2+1))$ andihturn Xo= Xo1 + Xe2