

$(E \cdot E) =$  intersection number of  $E$  with  $E$  in  $\tilde{M}$   
 $=$  degree of the normal bundle of  $\mathbb{P}^1 = \mathbb{P}^2$   
 $=$  Euler number of the normal bundle of  $\mathbb{P}^2 = -1$  by  
 P122. & P145  
 "Comment"

$\exists$  no holomorphic section on  $N_E$  since  $\deg N_E < 0$ .  
 What is the meaning of the degree of a divisor  $D$  on  
 a curve  $C$ ? effective

$[D]$

$\downarrow \Rightarrow$  Suppose  $\exists$  a section  $\sigma : C \rightarrow [D]$ .

$C \Rightarrow$  If  $(\sigma = 0) = D$ ,  $\sigma(C) \cap C = D$ .

$\Rightarrow \deg D = [C] \cdot [C]$ .

Topologically,  $M^{2n}$ ,  $N^n \subset M^{2n}$

Suppose  $\exists$  a normal  $\nu(N^n)$  in  $M^{2n}$ .

$\Rightarrow [N^n] \cdot [N^n] = \langle e(\nu), N^n \rangle =$  some sort of  
 obstruction. =

Since the map  $\pi$  has degree 1 - that is, the  
 image under  $\pi_*$  of the fundamental class  $[\tilde{M}] \in$   
 $H_4(\tilde{M}, \mathbb{Z})$  of  $\tilde{M}$  is just fundamental class of  $M$   
 - we deduce that for any divisor  $D, D'$  on  $M$ ,

$$\pi^* D \cdot \pi^* D' = D \cdot D',$$

and since the class  $(E)$  of the exceptional divisor  
 of the blow-up is in the kernel of  $\pi_*$ ,

$$\pi^* D \cdot E = \#(D \cdot (\pi_* E)) = 0$$

for any divisor  $D$  on  $M$ . Summarizing, the isomorp-  
 hism (\*) above is an isomorphism of inner product sp-