

DEAR JOAN

MY VISIT TO NY WAS REALLY STIMULATING — I'M REALLY GLAD IT HAPPENED. I WAS ~~HERE~~ IN NORTHERN CALIF. FOR THE WEEK AFTER I GOT BACK, BUT THIS WEEK I'VE BEEN REALLY PUTTING OUT. HERE ARE THE OCCURRENCES:

1) I'VE FINISHED BOTH PAPERS AND THEY ARE AT THE TYPIST, SO I WILL SEND THEM OFF AS SOON AS POSSIBLE, PLUS COPIES TO YOU.

2) ON FINISHING THE PAPER ON ENUMERATING YOUR Z_2 MAPS, I RETURNED ONCE AGAIN TO THE PROBLEM OF FINDING LINEAR RELATIONS AMONG THEM, WHICH HAS DEFEATED ME SEVERAL TIMES BEFORE. BUT THIS TIME I GOT LOTS OF RELATIONS BY A SEVERAL PROCEDURE, AND A DEFINITE POSSIBILITY OF SHOWING HOW ALL LINEAR RELATIONS OCCUR. AMONG OTHER THINGS, IT GIVES AN EASY PROOF THAT THEY ARE INDEPENDENT FOR GENUS g , AND IF IT GOES THROUGH, WOULD GIVE THE ORDER OF g_1/C_g .

3) I ALSO FOUND SOME VERY EFFICIENT REDUCTION PROCEDURES FOR THE PROBLEM WE WERE WORKING ON, WHICH ENABLES ME TO PROVE FIRST THAT ALL THE 4-INTERSECTIONS ($n=4$) CAN BE REDUCED, AND TO SHOW, USING THIS, THAT ALL CASES UP TO 14 INTERSECTIONS ALSO CAN BE REDUCED! I THINK THAT A CAREFUL EXAMINATION OF WHAT'S GOING ON IN THESE MANY EXAMPLES MIGHT GIVE A SEVERAL PROOF.

~~UNFORTUNATELY, THE SITUATION AT WORK IS BECOMING TIGHTER AND I WON'T HAVE AS MUCH TIME TO WORK ON MATH FOR A WHILE — PERHAPS THE SITUATION WILL LOOSEN UP LATER, BUT MAYBE NOT, SINCE WE HAVE A NEW HEAD IN MY SECTION WHO IS NOT INTERESTED IN PURE MATH & HAS OTHER ^{MAN} IDEAS OF WHAT WE SHOULD DO. IT'S TOO BAD, SINCE I'M REALLY BEGINNING TO GET MY STRIDE.~~

HERE IS A COPY OF MY STUFF ON INTERSECTION THEORY; IT WAS
 DONE QUITE A WHILE AGO, AND I COULD NOW MAKE PARTS OF IT MUCH CLEARER,
 BUT THE BASIC IDEAS ARE STILL GOOD. I THINK YOU WOULD PROBABLY
 BE INTERESTED ~~IN~~ IN SECTIONS (1)-(3), (5)-(11), (17)-(21), &
 (23)-(27). ALSO, IT DOESN'T CONTAIN THE EXTENSION OF INTERSECTIONS ~~TO~~
~~ON~~ $\mathbb{C}P^2/\mathbb{C}P^1$ TO $\mathbb{C}P^2/\mathbb{C}P^1$, WHICH IS ESSENTIAL TO GET CONDITIONS ON THE
 MATRICES OF THE MORSE THEORY FOR BRAD GROUP OF \mathcal{M}_g ; BUT THIS IS ~~NOT~~
 DONE USING THE GEOMETRIC FORM OF INTERSECTION DEFINED IN SECTION (11), MORE
 THE RELATION TO SURF² WITH BOUNDARY (SEE (4)).

DENNIS