

# MATH 205 MAPLETIPS

This assignment can be done in MS 571, 515, 521. Printouts will go to ST 142 (Elbow Room in Science Theatres). In MS 571, 515, 521 first hold down Control-Alt-Del, click mouse on Username and type that in, click (do not use Enter button here) on Password and type that in, click Login, then click OK, then Maple 9. You may like to then maximize the screen. Each mathematical command starts with a cursor  $>$ , and finish each command with a semi-colon ; (or a : if you wish to suppress the printing) followed by Enter. Detailed instructions for completing the assignment are given below. Don't forget to logout when done. The rooms mentioned are available at times which are posted on the doors of each room. MS 571 is even available on weekends. If a class is using the room (and a terminal is free) first ask the instructor for permission.

## INSTRUCTIONS

Your assignment should be turned in from the computer print-out, stapled, and should be about 2-4 pages long. Unstapled assignments not accepted. Do the questions in order and number each question clearly. Your name (or any other text) can be typed in by clicking the Maple Menu at top on "T", typing in whatever is needed, and then "Enter". To go back to the Maths Mode click the Menu on " $>$ ".

Remember that each maths command ends with a ; followed by "Return", these will not be indicated below after 2(a). You can also end a maths command with a :, this will suppress the printing. The specific commands for each problem follow. A couple of useful hints are first given. The basic arithmetical operations in Maple are  $+ - * / \wedge$ . Be very careful about parentheses, there must always be as many left parentheses as right parentheses, and don't forget the multiplication symbols (e.g. one must enter  $2 * x$  for  $2x$ ). The command % is a short-hand for the previous line's output. The exponential function  $e^x$  is typed  $\exp(x)$ , other common functions are  $\ln, \sin, \sinh, \arcsin, \operatorname{arcsinh}$ , etc. For some of the questions it's convenient to first define a function or symbol, then be careful to undefine it when the question is finished or MAPLE will keep the first meaning in all succeeding problems.

Enter your name and tutorial number (B01, B02, or B03) on first page, and your ID number on p.2.

1. Don't forget the  $*$  .
2. (a)  $>\operatorname{evalf}(1/53,100)$  ; Enter (the ; and Enter will not be written henceforth)  
(b) Hint: the period is 52 or a divisor of 52.
3. (a)  $>\operatorname{evalf}(\operatorname{Pi})$   
(b)  $>\operatorname{evalf}(\operatorname{Pi},100)$   
(c) Careful here or you will get the wrong answer. A written explanation of your answer must also be given here for credit.
4.  $> \operatorname{gcd}(x,y)$
5.  $> \operatorname{plot}(f(x),x=-2..7)$
6. (a)  $> \operatorname{convert}(x,\operatorname{base},7)$ , (b) similar. Be careful, Maple reverses the order of the digits.  
Before the next problems use the command  $>\operatorname{with}(\operatorname{numtheory})$ :

7. `> ifactor(x)`
8. (a) `> ithprime(2000)`  
(b) must experiment a little, try `> ithprime(70000)` to start out, also give some explanation for your answer
9. (a) `>fermat(4,'w')`, then `> w` . Do (b),(c),(d) similarly, use `:` to suppress the printout on (d)
10. (a) `> a:= given function`  
`> fsolve(a=0,x)`  
(b) `> solve(a=0,x)`, then `> evalf(Compare (in words) the answers in (a) and (b).`

To print just go to File and click on Print, similarly to exit go to File and click on Exit. It will ask you if you wish to save your work, generally the answer is No, but if you wish to continue the session later just use the Save As command as usual to create a file. Don't forget to logout when session is finished.