

Maple Workshops F7.1SC3, 2008

Assessment 1(2) (Week 2) (22.4)

Try all questions on the assessment. At the end of the class print out your worksheet and hand it in. **Layout your worksheet neatly and clearly number each answer.**

The worksheet you hand in at the end of the class should have the following information on it at the top:

Maple Assessment 1 (22.4)

Your full name

Your department

1. First assign the expression, and then find the floating point approximation of

$$\sqrt{5! + 110 \cos\left(\frac{6\pi}{e}\right)}$$

correct to first 8 and then 12 significant figures.

2. Find the coefficient of the term in x^{-1} and the term independent of x in the expansion of

$$\left(1 + x^2 - \frac{1}{2x}\right)^7.$$

3. Given the complex numbers $z = 1 - i/2$ and $w = 7 - 3i$ find $zw^{1/3}$ and determine the argument and modulus of $zw^{1/3}$ to 8 significant figures.

4. Find all of the solutions of

$$y^5 = 4$$

giving your answers in Cartesian form $a + ib$ to 3 significant figures.

5. (a) Plot the functions $5 \cos(x)$ and $e^{x/2}$ on the same graph. By varying (if necessary) the interval for plotting determine approximately the intervals within which lie the two (!) solutions of the equation $5 \cos(x) = e^{x/2}$.

- (b) Using the intervals read off from the plot find the numerical solutions of $5 \cos(x) = e^{x/2}$

6. On a single graph plot

(a) $\cos(2 * x)$ using a red line of thickness 2, and

(b) $\sin(x)$ using a blue line of thickness 3

in the range $-3\pi \leq x \leq 3\pi$.