

Notes:

• For help with these problems, use the Maple Help, Maple Quick Reference, Maple User's Manual, or this week's Information Sheet.

• All labs are to be completed using the program *Maple*.

• The file for your completed lab should include *your name* **and** the *lab number* as part of the file name (for example, JohnDoeLab1.mw). Also, type your full name and your section number (or class meeting time) at the top of the *Maple* worksheet and type the question/problem number at the beginning of *each* question/problem. I recommend that you put each problem in its own section within your Maple worksheet.

• You should save a copy of your lab as you are working on it in class, so be sure to either bring a flash drive to class or email your lab file to yourself so you can access your lab file on any computer on campus.

• Your completed lab assignment must be submitted **by email** to your instructor on (or before) the day and time that it is due.

For each numbered question use the format indicated in parenthesis for the display. Use complete sentences.

1. What is your name, major, and hometown? (bold text, 11 pt, Courier New font)
Why did you choose your current major? (regular text, 10 pt, Arial, text in black with a yellow background for this sentence only)
What is one of your hobbies or interests? (italics, 12 pt, Times New Roman font)
What is one of your favorite movies or books? (regular text, 11pt, Cambria font, text in orange with no background color)
2. Are you currently enrolled in Calculus I, Calculus II, or another mathematics class? If so, which one(s)? (12 pt. Arial, green letters, underline only the course name(s); the rest in italics, no background color)
3. What previous experience do you have using a calculator or a computer to do mathematics? (regular text, 10 pt. Calibri, blue letters, no background color for this part)

Enter and simplify each expression. For some of the problems, the result must be expressed in the indicated format. Note any differences in the solution or format of the solution. Optional: You may modify the color for the expressions and the backgrounds.

4. $\frac{5.145 + 0.7825}{3129.6 - 97.52}$ Do three times.

- (a) Give the solution in scientific notation with six significant digits.
- (b) Give the solution in standard notation with three decimal places.
- (c) Give the solution in standard notation with six decimal places.

5. $\sqrt{20} + \frac{1}{\sqrt{12}} - 3 \sin\left(\frac{7\pi}{4}\right)$ Do twice.
- Exact
 - Approximate to six decimal places
6. $\sqrt[3]{-27}$ Do three times.
- Use $\sqrt[3]{-27}$ and evaluate then convert to “surd” form.
 - Use $\sqrt[3]{-27}$ and evaluate then approximate to 5 decimal places.
 - Use $(-27)^{\frac{1}{3}}$ and evaluate and then simplify.
7. Type in ScientificConstants[GetConstant](c) and hit enter. What is c?
8. $(5.18 \times 10^4 \text{kg})(4.21 \times 10^{-2} \text{m/sec}^2)$. Evaluate this in-line and then simplify the units. Explain the units in a sentence.
9. Simplify $(3x^2 + 5x - 2) - (5x^2 - 7x + 3)$.
10. Factor $2x^4 + x^3 - 8x^2 + x - 10$.
- Factor either inline or displayed.
 - Factor over the complex numbers.
11. Combine $\frac{4x - 1}{x + 2} + \frac{3x + 4}{2x - 5}$ to form a single rational expression.
12. Simplify $\left(\frac{2x^2 + 7x - 15}{x^2 - 2x - 35}\right) \left(\frac{2x^2 - 13x - 7}{2x^2 + 5x - 12}\right)$
13. $\tan^2(x) - \sec^2(x)$ Do twice.
- Just evaluate (either in-line or displayed).
 - Simplify the expression.

What does the procedure that you used in the second part imply about trigonometric functions?

Solve each problem and write the solutions to the problems in complete sentences.

14. A hemispherical dome has a circumference of 700 meters. Find the volume and surface area of the dome.
15. A 12-hour clock has a minute hand that is seven inches long and an hour hand that is four inches long. Find the distance between the tips of the minute hand and hour hand at 8:00.