Arithmetic on the TI 83/84

Your calculator is incredibly powerful and relatively easy to use. This activity will touch on a small part of its capabilities.

1. Perform the following calculations on your calculator. Give rational answers for a – e.

a) $-4 - 8 =$ b) $8\{3 - 2[3 - 2(5 + 2)]\} =$ c) $-4 - -5 =$

d) $\dfrac{-3^2 + (-5)^2 - 2^3}{3^{3-2}} =$ e) $\dfrac{45 - 13}{2(31 - 6) + 12} =$ f) $\dfrac{5}{2\pi} + 2^{2\pi} \approx$

2. Evaluate $\dfrac{23 - 15}{4^3}$ by hand and then on the calculator. **Be absolutely certain you have the correct value for R before you move on.** Store that value in 'R'. Display as a fraction on the screen. What is R^{-5}?

3. Evaluate $1 + 2R \div (4R)$ and then evaluate $(1 + 2R) \div (4R)$. Are they the same? Explain why or why not? Which of the expressions in (3) is the same as $\dfrac{1 + 2R}{4R}$?

4. Do the following operations and then rewrite your answer as a fraction.

$$\frac{45}{2} + \frac{17 - 23}{5} - \frac{13 + 18}{9 - 5} + \frac{-3 - 12}{-3 + 6} + 5 =$$

5. Do the following operations and then rewrite your answer as a fraction.

$$\left(\frac{3}{7}\right)^2 + \left(\frac{49}{5}\right)^{-1} =$$

6. Evaluate the following. Write your result in fraction form if possible. Do not round your answer before hitting the fraction key!

a) $\dfrac{5+16*3^2}{37-2*7}$ b) $\sqrt{\dfrac{16+3*35}{235-3*13}}$

c) $\sqrt{400-5*4^2}$ d) $\left(\dfrac{5-12^2}{37+4*9}\right)^3$

7. Store the following values into your calculator: A = 4, B = 5, C = -6 and then evaluate the following:

a) $12B + 6C^2 - 12A$ b) $\dfrac{-B \pm \sqrt{B^2 - 4AC}}{2A}$ (Pay close attention to Order of Operations!)

8. Evaluate the following and write your answers as fractions.

a) $\left(\frac{2}{5}\right)^2$ b) $\left(\frac{2}{5}\right)^{-2}$ c) $\left(\frac{3}{8}\right)^3$ d) $\left(\frac{3}{8}\right)^{-3}$

e) By comparing parts (a) and (b) and then parts (c) and (d), determine what the negative exponent does.

9. Use your calculator to evaluate: Write your answer in <u>correct scientific notation</u>.

c) $5678 \times 34{,}000{,}000{,}000{,}000{,}000{,}000 =$ b) $\frac{9 \times 10^{-14}}{4 \times 10^{-15}} =$

c) $(345)^4(807)^{12} =$ d) $\frac{408}{2589^9} =$

10. One light-year is the distance that light travels in one year (365 days). The speed of light is about 186,000 miles per second. Express your answer in scientific notation.

- In miles, how long is one light year?
- The circumference of Earth is roughly 25,000 miles. Assuming light would curve around the Earth, how long would it take light to travel all the way around the Earth?