Doing Calculations with Functions.

1. Let $F(u) = u^2 + 1$. Then commute $F(1+h)$. $F(1+h) = $ _____

2. For the same function F compute $F(1)$. $F(1) = $ _____

3. Now compute $\dfrac{F(1+h) - F(1)}{h}$ and simplify.

$$\frac{F(1+h) - F(1)}{h} = \underline{\hspace{4cm}}$$

4. Now let $G(s) = 2 - s^2$ and compute $\dfrac{G(-1+h) - G(-1)}{h}$

$$\frac{G(-1+h) - G(-1)}{h} = \underline{\hspace{4cm}}$$

Solving Equations by Graphing.

In the following not all the functions are given in terms of the variables x and y. However to enter them into your calculator you should use x for the independent variable and y for the dependent variable.

1. Graph the following functions on the indicated intervals. (It is up to you to figure out appropriate of `Ymax` and `Ymin`.)
   (a) $y = x^2 - 3x + 7$ for $0 \le x \le 2$
   (b) $z = \dfrac{r^2 + 1}{r + 7}$ for $-1 \le r \le 3$
   (c) $P = \sqrt{4 - t^2}$ for $-2 \le t \le 2$
   (d) $H(t) = \dfrac{1 - 2^t}{1 + 1^t}$ for $-1 \le t \le 3$.

2. By zoom in on the graph solve the following equations accurate to 2 decimal places. Your answer should be in the form of a complete sentence that allows a reader to reproduce your results. **Example:** Find a solution to $x^3 + 2x - 1 = 0$ between 0 and 1. **Solution:** I zoomed in on the graph and used as the left bound $x = .4495$ and the right bound $x = .4566$ and got for the root $x \approx .4533$ (using the solve feature of the calculator). This is accurate to two decimal places.
   (a) Find a solution to $x^3 - 7$ between 1 and 2 accurate two decimal places.
   (b) Find a solution to $\dfrac{2(3^r) - 7}{\sqrt{r^2 + 1}}$ between 0 and 2 accurate two decimal places.
   (c) Find the solution to $1000(1.05)^t = 25,000$ accurate two decimal places.
   (d) Find the solution to $1 + 3x^5 = 3^{-x}$ accurate two decimal places.