

Last name _____

First name _____

LARSON—MATH 353—CLASSROOM WORKSHEET 02
Getting Started.

1. Log in to CoCalc.
 - (a) Start the Chrome browser.
 - (b) Go to `https://cocalc.com`
 - (c) Login (**your VCU email address** is probably your username).
 - (d) You should see an existing Project for our class. Click on that.
 - (e) Click “New”, then “Worksheets”, then call it **c02**.

2. **A problem to think about: the Birthday Problem.** If there’s 366 students in a room some pair of them are guaranteed to have the same birthday (month & day) . If there are only 2 students in a room they are very unlikely to have the same birthday. How many students do we need in order for the probability to be at least $\frac{1}{2}$ that at least one pair of students has the same birthday?

The multiplication operator in Sage is “*”. The most common error in Sage is forgetting to put in a “*” when multiplying.

3. Find $550 \frac{[1 + (1.05)^{-30}]}{0.05}$

4. Use `n(-)` to find a decimal approximation for $\sqrt{8}$.

The `sqrt` command can be modified to find other roots. Evaluate `help(sqrt)` to get useful *help* information for this command.

5. Find $\sqrt[6]{50}$.

6. Evaluate “pi”. Then use `n(-)` to find a decimal approximation for π .

7. Evaluate “e”. Find a 6-digit approximation for e

8. Find a 6-digit approximation for e^3
9. Find $\log 10$
10. Find $\log_{10} 10$.
11. Find $\sin \frac{\pi}{3}$
12. Find $\tan \frac{\pi}{2}$.
13. Find $\arcsin \frac{1}{2}$

Sage doesn't understand degrees—only radians. What can you do here?

14. Find $\sin 47^\circ$, and a decimal approximation.
15. Type in “i” and evaluate.
16. Find i^3 by hand, then check it with Sage.

`plot` is Sage's powerful and flexible command for plotting functions of a single variable.

17. Sketch the graph of x^3 on the interval $(-2, 2)$.
18. Sketch the graph of $|x - 1|$ on a “nice” interval.
19. Sketch $\cos x$.
20. Sketch $\cos t$. What happens? What do you think the difference is?

Getting your classwork recorded

When you are done, before you leave class...

- (a) Click the “Make pdf” (Adobe symbol) icon and make a pdf of this worksheet. (If Cocalc hangs, click the printer icon, then “Open”, then print or make a pdf using your browser).
- (b) Send me an email with an informative header like “Math 353 - c02 worksheet attached” (so that it will be properly recorded).
- (c) Remember to attach today's classroom worksheet!