

640:151 Calculus I, Fall 2012 Sample Precalculus Questions

This is a brief list of sample precalculus questions with which you should *already* be comfortable. If you are having difficulty completing these exercises, please consult Chapter 1 of your textbook and contact your Instructor and/or TA for additional help. It is important to note that answers given without any explanation or justification (words, phrases/sentences, and algebraic steps) may be given minimal credit on homework, quizzes and exams.

1. Write an equation for the line passing through $(-1, 4)$ and $(2, 6)$.
2. Sketch a graph of $f(x) = x^3$ for $-1 \leq x \leq 2$.
3. Find the exact value of $\sin\left(\frac{\pi}{3}\right) + 2\cos\left(\frac{\pi}{3}\right)$.
4. Find the domain and range of the function $f(x) = \sqrt{x+1}$.
5. Find an equation for the line parallel to $y = 3 - 2x$ passing through $(2, 3)$.
6. Compute the exact value of $2\tan\left(\frac{\pi}{4}\right) - \cos(\pi)$.
7. Give an example of numbers x, y such that $|x| + |y| = x - y$.
8. If $f(x)$ is the square of the distance from the point $(2, 1)$ to a point $(x, 3x + 2)$ on the line $y = 3x + 2$, then $f(x)$ is a quadratic function, $f(x) = Ax^2 + Bx + C$. Find A, B , and C .
9. If $\ln(A) = a$ and $\ln(B) = b$, write $\ln\left(\frac{B}{\sqrt{A}}\right)$ and $\ln(A)\ln(AB^3)$ in terms of a and b .
10. Sketch a graph of $y = 2 - x^2$ for $-2 \leq x \leq 1$.