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Source markdown available at github.com/BenLangmead/c-cpp-notes
Math functions

#include math.h and compile with -lm option to gain access to these basic mathematical functions:

- sqrt(x): square root
- pow(x, y): $x^y$
- exp(x): $e^x$
- log(x): natural log
- log10(x): log base 10
- ceil(x) / floor(x): round up / down to nearest integer
- sin(x): sine (other trigonometric functions available)
Math functions

$x$ and $y$ arguments have type double

It’s also OK to pass another numeric type, like int

- Argument type promotion: int -> float -> double

-lm includes the math library when *linking*
Math functions

#include <stdio.h>
#include <math.h>

int main() {
    // a and b are the short side lengths for right triangle
    // Pythagorean theorem: a*a + b*b = c*c
    float a, b;
    scanf("%f%f", &a, &b);
    float c = sqrt(a*a + b*b);
    printf("Third side length = %.3f\n", c);
    return 0;
}

$ gcc assert_eg.c -lm -std=c99 -pedantic -Wall -Wextra
$ echo 3.0 4.0 | ./a.out
Third side length = 5.000

$ echo 3.0 3.0 | ./a.out
Third side length = 4.243