



Students:
Section 2.8 is a part of 2 assignments: [CSC108 CH02.1-2.10 C2A](#) ▾

This assignment's due date has passed. Activity will still be recorded, but will not count towards this assignment (unless the due date is changed). See [this article](#) for more info.

Includes: CA
Due: 02/04/2025, 11:59 PM EST

2.8 Scientific notation for floating-point literals

Scientific notation is useful for representing floating-point numbers that are much greater than or much less than 0, such as 6.02×10^{23} . A floating-point literal using **scientific notation** is written using an e preceding the power-of-10 exponent, as in 6.02e23 to represent 6.02×10^{23} . The e stands for exponent. Likewise, 0.001 is 1×10^{-3} and can be written as 1.0e-3. *For a floating-point literal, good practice is to make the leading digit non-zero.*

Figure 2.8.1: Calculating atoms of gold.

```
#include <iostream>
using namespace std;

int main() {
    double avogadrosNumber = 6.02e23; // Approximation of atoms per mole
    double gramsPerMoleGold = 196.9665;
    double gramsGold;
    double atomsGold;

    cout << "Enter grams of gold: ";
    cin >> gramsGold;

    atomsGold = gramsGold / gramsPerMoleGold * avogadrosNumber;

    cout << gramsGold << " grams of gold contains ";
    cout << atomsGold << " atoms" << endl;

    return 0;
}
```

Enter grams of gold: 4.5
4.5 grams of gold contains 1.37536e+22 atoms

Feedback?

PARTICIPATION
ACTIVITY

2.8.1: Scientific notation.



- 1) Type 1.0e-4 as a floating-point literal with a single digit before and four digits after the decimal point. Note: Do not use scientific notation.

Check

Show answer



- 2) Type 7.2e-4 as a floating-point literal with a single digit before and five digits after the decimal point. Note: Do not use scientific notation.

Check

Show answer



- 3) Type 540,000,000 as a floating-point literal using scientific notation with a single digit before and after the decimal point.

Check

Show answer



- 4) Type 0.000001 as a floating-point literal using scientific notation with a single digit before and after the decimal point.

Check

Show answer



- 5) Type 623.596 as a floating-point literal using scientific notation with a single digit before and five digits after the decimal point.

Check

Show answer



Feedback?

CHALLENGE
ACTIVITY

2.8.1: Scientific notation for floating-point literals.



620890.5010016.qx3zqy7

Start

Type 6.24e5 as a floating-point literal with one digit after the decimal point. Note: Do not use scientific notation.

Ex: 10.0

1

2

3

4

5

Check

Next



1



2



3



4



5

Feedback?

CHALLENGE
ACTIVITY

2.8.2: Acceleration of gravity.



Compute the acceleration of gravity for a given distance from the earth's center, distCenter, assigning the result to accelGravity. The expression for the acceleration of gravity is: $(G * M) / (d^2)$, where G is the gravitational constant 6.673×10^{-11} , M is the mass of the earth 5.98×10^{24} (in kg) and d is the distance in meters from the earth's center (stored in variable distCenter). Note: Assume distance is at least the radius of the earth.

See [How to Use zyBooks](#) for info on how our automated program grader works.

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```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     double G = 6.673e-11;
6     double M = 5.98e24;
7     double accelGravity;
8     double distCenter;
9
10    cin >> distCenter;
11
12    /* Your solution goes here */
13
14    cout << accelGravity << endl;
15
16    return 0;
17 }
```

Run

View your last submission ▾



1 test passed



All tests passed

Feedback?

How was this section?



Provide section feedback

Activity summary for assignment: [CSC108 CH02.1-2.10 C2A](#) ▾

41 / 41 points

Due: 02/04/2025, 11:59 PM EST

41 / 41 points submitted to BlackboardLearn

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Completion details ▾