Practice Examples for Lab: Set 2

- 1 Write a program that prints the arithmetic sequence $a, a+d, a+2d, \ldots, a+nd$. Take a, d, n as input.

  Write a program that prints out the geometric sequence $a, ar, ar^2, \ldots, ar^n$, taking a, r, n as input.

- 2 Write a program that reads in distance d in inches and prints it out as v miles, w furlongs, x yards, y feet, z inches. Remember that a mile equals 8 furlongs, a furlong equals 220 yards, a yard is 3 feet, and a foot is 12 inches. So your answer should satisfy $d = (((8v + w) \cdot 220 + x) \cdot 3 + y) \cdot 12 + z$, and further $w < 8, x < 220, y < 3, z < 12$.

- 3 What is the value of `x` after the following statements are executed? (a) `x=22/7;` (b) `x=22.0/7;` (c) `x=6.022E23 + 1 - 6.022E23` (d) `x=6.022E23 - 6.022E23 + 1` (e) `x=6.022E23 * 6.022E23`. Answer for three cases, when `x` is defined to be of type `int`, `float`, `double`. Put these statements in a program, execute and check your conclusions.

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- 4 What will be the effect of executing the following code fragment?

```
float f1, f2,centigrade=100;
f1 = centigrade*9/5 + 32;
f2 = 32 + 9/5*centigrade;
cout << f1 << ' ' << f2 << endl;

char x = 'a', y;
y = x + 1;
cout << y << ' ' << x + 1 << endl;
```

- 5 For what values of `a,b,c` will the expressions `a+(b+c)` and `(a+b)+c` evaluate to different values?

- 6 Draw a smooth spiral. The spiral should wind around itself in a parallel manner, i.e. there should be a certain point called "center" such that if you draw a line going out from it, the spiral should intersect it at equal distances as it winds around.