Factors

A factor of a number is a number that divides the given number evenly or exactly, leaving no remainder. For example, the factors of 6 are 6, 3, 2, and 1. The factors of 18 are 18, 9, 6, 3, 2, and 1.

Write a function that takes a number. It returns all the factors for that number using an array. You can fix the size of the array to be 400.

Perfect Number

A number is perfect if all of its factors, including 1 but excluding itself, perfectly add up to the number you began with. For example, 6 is perfect number, because its factors — 3, 2, and 1 — all sum up to 6. 28 is perfect too: 14, 7, 4, 2, and 1 add up to 28.

Write a function that takes a number. The function returns true if the number is a perfect number. This function needs to use the *factors* function from above.

All Perfect Numbers

Write a program to print out the first 4 perfect numbers in ascending order starting from 2. The program needs to use the two functions *factors* and *perfectNumber* from above.

The first five perfect numbers are 6, 28, 496, 8128, and 33,550,336

This is how you can rate yourself:

- A – If you can do each of the questions in 10 minutes.
- B – If you can do each of the questions in 15 minutes.
- C – If you can do each of the questions in 25 minutes.
- D – If you cannot do all of the questions.
- F – If you cannot even do one question.