Within 5000 light years of our sun, there are 4 separate spiral arms. The following segments represent the locations of these four spiral arms:

- **Outer Arm**: from (-80, +45) to (+80, +45);
- **Perseus Arm**: from (-80, +25) to (+80, +25);
- **Orion Arm**: from (-60, +25) to (+80, -20);
- **Sagittarius Arm**: from (-80, -25) to (+80, -50).

The coordinates are given so that 5 units equals 300 light years.

**Problem 1 - In what arms are the following objects located?**

- A) Sun (0,0)?
- B) Eagle Nebula (+40, -30)?
- C) Orion Nebula (-10, 0),
- D) Crab Nebula (0, +25)
- E) Lagoon Nebula (+10, -20)
- F) North American Nebula (+35, 0)

**Problem 2 - How many light years is the North American Nebula from our Sun?**

[Space Math](http://spacemath.gsfc.nasa.gov)
Problem 1 -
A) Orion Arm.
B) Sagittarius Arm.
C) Orion Arm.
D) Perseus Arm.
E) Sagittarius Arm.
F) Orion Arm.

Problem 2 - We know that 5 units on the coordinate axis represents 300 light years, and that the sun is at the origin, so the North American Nebula is +35 units from the sun or $35 \times 300 = 10,500$ light years.]