Use of Control Statements

Class Work Questions

1. Print the larger and smaller of the two numbers.
2. Print whether the number is even or odd.
3. Find the largest of three given numbers.
4. Check whether a year is a leap or not.
5. Find the grade of a student based on the marks obtained.

Homework Questions

1. Calculates the user's body mass index (BMI) and categorizes it as underweight, normal, overweight, or obese, based on the following table from the United States Centers for Disease Control. Prompt the user to enter weight in pounds and height in inches.

BMI	Weight Status
Below 18.5	Underweight
18.5–24.9	Normal
25.0–29.9	Overweight
30.0 and above	Obese

To calculate BMI based on weight in pounds (wt_lb) and height in inches (ht_in), use this formula (rounded to tenths):

$$\frac{703 \times wt\_lb}{ht\_in^2}$$

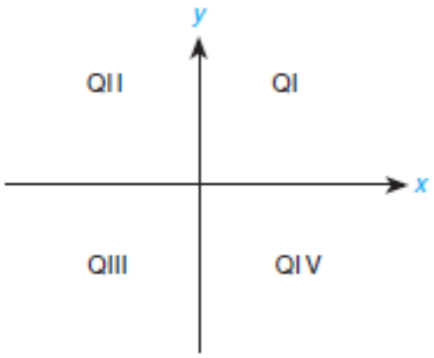
2. Write a program that reports the contents of a compressed-gas cylinder based on the first letter of the cylinder's color. The program input is a character representing the observed color of the cylinder: 'Y' or 'y' for yellow, 'O' or 'o' for orange, and so on. Cylinder colors and associated contents are as follows. Your program should respond to input of a letter other than the first letters of the given colors with the message: "Contents Unknown" .

orange	ammonia
brown	carbon monoxide
yellow	hydrogen
green	oxygen

3. The National Earthquake Information Center has asked you to write a program implementing the following decision table to characterize an earthquake based on its Richter scale number.

Richter Scale Number (n)	Characterization
$n < 5.0$	Little or no damage
$5.0 \leq n < 5.5$	Some damage
$5.5 \leq n < 6.5$	Serious damage: walls may crack or fall
$6.5 \leq n < 7.5$	Disaster: houses and buildings may collapse
higher	Catastrophe: most buildings destroyed

4. Write a program that takes the (*x* , *y*)coordinates of a point in the Cartesian plane and prints a message telling either an axis on which the point lies or the quadrant in which it is found. Sample lines of output:
(-1.0, -2.5) is in quadrant III
(0.0, 4.8) is on the *y*-axis



5. Write a program that interacts with the user like this:
(1) Carbon monoxide
(2) Hydrocarbons
(3) Nitrogen oxides
(4) Non-methane hydrocarbons
Enter pollutant number >> 2
Enter number of grams emitted per mile >> 0.35
Enter odometer reading >> 40112

Emissions exceed the permitted level of 0.31 grams/mile.
Use the table of emissions limits below to determine the appropriate message.

	First 50,000 Miles	Second 50,000 Miles
carbon monoxide	3.4 grams/mile	4.2 grams/mile
hydrocarbons	0.31 grams/mile	0.39 grams/mile
nitrogen oxides	0.4 grams/mile	0.5 grams/mile
nonmethane hydrocarbons	0.25 grams/mile	0.31 grams/mile