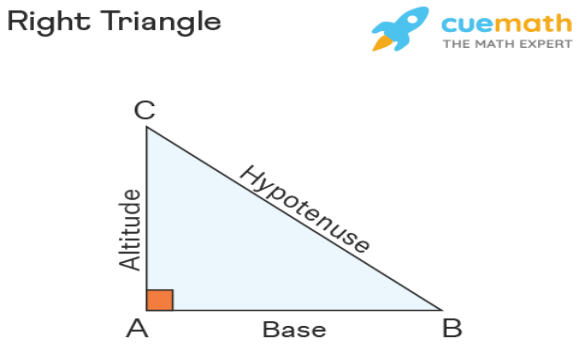
Sheet2

1) Write a program that prompts the user to input a number. The program should then output the number and a message saying whether the number is even or odd.

2)* Write a program that prompts the user to input a number. The program should then output the number and a message saying whether the number is positive, negative, or zero.

3) *Write a program that prompts the user to input three numbers. The program should then output the numbers in ascending order.

4)* In a right triangle, the square of the length of one side is equal to the sum of the squares of the lengths of the other two sides. Write a program that prompts the user to enter the lengths of three sides of a triangle and then outputs a message indicating whether the triangle is a right triangle or not.



Definition: (The definition for a right triangle states that if one of the angles of a triangle is a right angle - 90º)

In a right triangle we have: $\mathbf{(Hypotenuse)^2 = (Base)^2 + (Altitude)^2}$

5) *Write a program that mimics a calculator. The program should take as input two integers and the operation to be performed. It should then output the numbers, the operator, and the result. (For division, if the denominator is zero, output an appropriate message.) Some sample outputs follow: 3 + 4 = 7 , 13 * 5 = 65

6) (*Game: add three numbers*) write a java program that generate three random single-digit integers (0-9) and prompt the user to enter the sum of these three integers and output if the answer is correct or wrong and output the correct answer if it`s wrong.

7) (*Get month*) Write a program that take a number between 1 and 12 and displays the English month name January, February, …, December for the number 1, 2, …, 12, accordingly.

8)* (*Game: heads or tails*) Write a program that lets the user guess whether the flip of a coin results in heads or tails. The program **randomly generates an integer 0 or 1**, which represents head or tail. The program **prompts the user to enter a guess** and reports whether the guess is correct or incorrect.

Extra Exercises For Self-Learning.

9) ***(Game: scissor, rock, paper)*** Write a program that plays the popular scissor-rock-paper game. (A scissor can cut a paper, a rock can knock a scissor, and a paper can wrap a rock.) The program randomly generates a number **0**, **1**, or **2** representing scissor, rock, and paper. The program prompts the user to enter a number **0**, **1**, or **2** and displays a message indicating whether the user or the computer wins, loses, or draws.

10) ***(Geometry: point in a circle?)*** Write a program that prompts the user to enter a point (**x**, **y**) and checks whether the point is within the circle centered at (**0**, **0**) with radius **10**. For example, (**4**, **5**) is inside the circle and (**9**, **9**) is outside the circle, as shown in Figure 3.7a. (*Hint*: A point is in the circle if its distance to (**0**, **0**) is less than or equal to **10**. The formula for computing the distance is 2(*x*2 - *x*1)2 + (*y*2 - *y*1)2. Test your program to cover all cases.).

11) ***(Cost of shipping)*** A shipping company uses the following function to calculate
the cost (in dollars) of shipping based on the weight of the package (in pounds).

C(w) =

3.5, if 0 < *w* < = 1
5.5, if 1 < *w* < = 3
8.5, if 3 < *w* < = 10
10.5, if < *w* < = 20

Write a program that prompts the user to enter the weight of the package and display the shipping cost. If the weight is greater than 50, display a message “the package cannot be shipped.