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**Question 1.** Write a program that converts time given in seconds as an integer into “hh:mm:ss” format. All these three values, h for hour, m for minute, and s for second will be given as integers.

**NOTE:** If either the hour, minute, or the second value is smaller than 10, you must print a 0 next to it (i.e. Instead of 9:3:45, the program should print out 09:03:45)

**Examples:**

Input    100            3700            8000  
Output 00:01:40 01:01:40 02:13:20

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**Question 2.** Write a program that computes and displays the area of a geometrical shape. First, the program will read the type of the shape which is given in as a character. Then, based on the shape, you will read one or two more values.

The type of the shapes can either be,

- s or S for square
- r or R for rectangle
- c or C for circle.

If the shape is a square, then the program will read 1 input: the edge length (**a**)

If the shape is a rectangle, then the program will read 2 inputs: edge length (**a**) and height (**h**)

If the shape is a circle, then the program will read 1 input: radius (**r**)

After that, your program will compute the **AREA** of the given shape and print it out to the screen as a double value.

**NOTE:** Area formulations of the shapes are as below:

Square	Rectangle	Circle
$a*a$	$a*h$	$pi*r*r$

**NOTE:** Take pi as 3.14

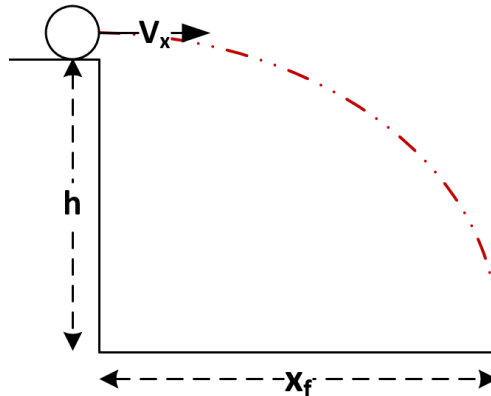
Input    S 5 r 4 8 C 2

Output 25 32 12.56

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**Question 3.** An object is thrown near a cliff as depicted in the following figure



Write a program which calculates after  $s$  seconds whether the object hits the ground or not. Your program will read three double values,  $x$  velocity ( $V_x$ ), the height of the cliff ( $h$ ), and seconds passed ( $s$ ). After the object is thrown, it will start moving to the right with a CONSTANT speed of  $V_x$ . At the same time, it will start to drop down due to gravity. The vertical distance the object will cover by falling after  $t$  seconds is calculated by the formula given below.

Based on the input values, your program will check if the object hits the ground within  $s$  seconds or not. The output of the program varies as below:

- If the object hits the ground within  $s$  seconds:  
Output: "Object hit the ground, time until crash:  $S_c$ .  
Final x distance:  $x_F$ "
- If the object DID NOT hit the ground within  $s$  seconds:  
Output: "Object did not hit the ground.  
Final x distance:  $x_F$   
Final height:  $y_F$ "

All the output values will be double values.

**HINT:** Formula:  $h = \frac{1}{2}gt^2$  and take  $G$  as 9.81

**HINT:** In order to calculate the squareroot of a given number you can use the Math.sqrt method as shown below:

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Y = Math.sqrt(X);
```

**Examples:**

<b>Input</b>	12.5 33.6 1.7	12.45 25.76 3.5
<b>Output</b>	Object did not hit the ground Final x distance: 21.250001 Final height: 19.424548	Object hit the ground Time until crash: 2.291677 Final x distance: 28.531378

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