

Assignment – 01

(without using control/iterative statements)

- 1) Write a program in Java that reads in three integer command line arguments, x, y, and z. Create a boolean variable b that is true if the three values are either in ascending or in descending order, and false otherwise. Print the variable b.
- 2) Write a program in Java that reads in two command line inputs and prints true if both are divisible by 7, and false otherwise.
- 3) Write a program in Java that takes three command line inputs a, b, and c, representing the side lengths of a triangle, and prints the area of the triangle using Heron's formula: $\text{area} = \sqrt{s(s-a)(s-b)(s-c)}$, where $s = (a + b + c) / 2$.
- 4) Write a program in Java to illustrate various trigonometric functions in the Math library, such as Math.sin(), Math.cos(), and Math.toRadians().
- 5) Write a program in Java that reads in three command-line arguments P, Y, and R and calculates the monthly payments you would have to make over Y years to pay off a P rupees loan at R per cent interest compounded monthly. $\text{payment} = Pr / 1 - (1+r)^{-n}$, where $n = 12*Y$, $r = R/(12*100)$.
- 6) **Wind chill:** Given the temperature t (in Fahrenheit) and the wind speed v (in miles per hour), the National Weather Service defines the effective temperature (the wind chill) to be:

$$w = 35.74 + 0.6215 t + (0.4275 t - 35.75) v^{0.16}$$

Write a program in Java that takes two double command-line arguments t and v and prints the wind chill. *Hint: Use Math.pow(a, b) to compute a^b . Note: the formula is not valid if t is larger than 50 in absolute value or if v is larger than 120 or less than 3 (you may assume that the values you get are in that range).*