1A

chapter 3.

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| 1. ***(Read pg 40-41)WAP to ask user to enter a number less than 10, if the user enters a number less than 10, print : “What an obedient servant you are!”*** 2. ***(Read pg 41-43)While purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 1000. If quantity and price per item are input through the keyboard, write a program to calculate the total expenses.*** 3. ***(Read pg 44, 45, 46)WAP to accept the current year and the year in which the employee joined the organization. If the number of years for which the employee has served the organization is greater than 3, then a bonus of $2500 is given to the employee. If the years of service are not greater than 3, then the program should do nothing.*** |

2A

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| 1. ***Any integer is input through the keyboard. Write a program to find out whether it is an odd number or an even number.*** 2. ***Any year is an input through the keyboard. WAP to determine whether the year is a leap year or not.*** 3. ***According to the Gregorian calendar, it was Monday on the date 01/01/01. If any year is input through the keyboard write a program to find out what is the day on 1st January of this year.*** 4. ***A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not.*** 5. ***Take two numbers from the user and display the largest.*** |

2B

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| 1. ***Take two numbers from the user and display the smallest.*** 2. ***Take three numbers from the user and display the largest.*** 3. ***Take three numbers from the user and display the smallest.*** 4. ***If the ages of Ram, Shyam and Ajay are input through the keyboard, WAP to determine the youngest of the three. Display the name and the age.*** 5. ***Write a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees.*** 6. ***WAP to accept two values from the user, swap the values without using a third variable and print the values before and after swapping.*** |

1B

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| 1. ***(Read Pg47). In a company an employee is paid as under: If his basic salary is less than $ 7500, then HRA = 10% of basic salary and DA = 90% of basic salary. If his salary is either equal to or above $7500, then HRA is $1000 and DA is 98% of basic salary. If the employee’s salary is input through the keyboard write a program to find his gross salary.*** 2. ***(Read Pg48, 49). Ask the user to enter either 1 or 2. IF the user enters 1 print “You would go to heaven”, if the user enters 2 print “Hell was created with you in mind”, if the user enters any other number other than 1 or 2, print “How about mother earth.”*** 3. ***If the cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss.*** |

3A

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| 1. ***Find the absolute value of a number entered through the keyboard.*** 2. ***Given the length and breadth of a rectangle, write a program to find whether the area of the rectangle is greater than its perimeter. For Example, the area of the rectangle with length = 5 and breadth = 4 is greater than its perimeter.*** 3. ***Given three points (x1, y1), (x2, y2), and (x3, y3), write a program to check if all the three points fall on one straight line.*** 4. ***Given the coordinates (x, y) of center of a circle and its radius, write a program that will determine whether a point lies inside the circle, on the circle or outside the circle. (Hint: Use sqrt() and pow() functions)*** |

4A

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| 1. ***WAP to accept marks in 2 subjects and display grade:***  * ***Display Grade as “A” if marks in all the subjects are greater than 80 or if aggregate marks are greater than 80.*** * ***Display Grade as “B+” if marks in one of the subjects is more than 80, and the aggregate marks are less than 80 but more than 75.*** * ***Display Grade as “B” if the aggregate marks are less than 80 but more than 75 and none of the subjects have more than 80 marks.*** * ***Display Grade as “C” otherwise.***  1. ***WAP to accept 3 numbers and display the largest without using logical operators.*** |

4B

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| 1. ***WAP to accept Employee grade and salary and display the net salary based on the following calculation:***  |  |  |  |  | | --- | --- | --- | --- | | ***Grade:*** | ***HRA*** | ***DA*** | ***PF*** | | ***1*** | ***50%*** | ***20%*** | ***5%*** | | ***2*** | ***40%*** | ***30%*** | ***3%*** | | ***3*** | ***30%*** | ***15%*** | ***4%*** | | ***4*** | ***20%*** | ***10%*** | ***5%*** | | ***5*** | ***10%*** | ***5%*** | ***2%*** | |

3B

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| 1. ***Given a point (x, y), write a program to find out if it lies on the x-axis, y-axis or on the origin.*** 2. ***Given a, b, c of a quadratic equation ax2+bx+c=0, find the value of x.***   Test Data : 1 5 7 **Expected Output :** Root are imaginary; No solution.   1. ***WAP to accept price and quantity and display Amount, Discount, Tax and Net amount:***   ***Give a discount of 10% for quantity less than 5, if the quantity is more than 5 give 20% discount. Give further discount of 5% if the amount crosses $1000.***   1. ***WAP to accept two numbers and change both the numbers to the largest.*** 2. ***WAP to accept a number and display whether it is divisible by 3 and 5 or divisible only by 5 or divisible only by 3 or none.*** |

5A

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| 1. ***WAP to accept month, and number of the year and display number of days in the month.*** 2. ***WAP to accept marks in 2 subjects and display the student is pass if he gets more than 50 in each subject (or) more than 120 in both the subjects (or) more than 80 in any 1 subject.*** 3. ***WAP to display the wage to be paid to worker based on the number of hours worked and day of the week.***  |  |  | | --- | --- | | ***Day*** | ***Wage per hour*** | | ***1 & 2(mon and tue)*** | ***100*** | | ***3, 4, 5*** | ***110*** | | ***6*** | ***150*** | | ***7*** | ***200*** |   ***If the wage crosses 1000 give 10% bonus.*** |

6A

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| 1. ***WAP to accept the height of a person in centimeter and categorize the person according to their height.***  * ***If the height is greater than or equal to 165cm, then the person is “Tall”.*** * ***If the height is equal to 150, the person is “Average height”.*** * ***If the height is less than 150, the person is a “Dwarf”***  1. ***WAP to find the largest of the three numbers.***   Test Data : 12 25 52 Expected Output : 1st Number = 12,        2nd Number = 25,        3rd Number = 52 The 3rd Number is the greatest among three |

6B

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| 1. ***WAP to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies.***   Test Data : 7 9 Expected Output : The coordinate point (7,9) lies in the First quadrant.   1. ***Write a C program to find the eligibility of admission for a professional course based on the following criteria:***   Marks in Maths >=65 Marks in Phy >=55 Marks in Chem>=50 Total in all three subject >=180 or Total in Math and Subjects >=140  **Test Data :** Input the marks obtained in Physics :65 Input the marks obtained in Chemistry :51 Input the marks obtained in Mathematics :72 **Expected Output :** The candidate is eligible for admission. |

5B

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| 1. ***WAP to accept 3 numbers and display the smallest of 3 numbers without using logical operator.*** 2. ***WAP to accept two integers and check whether they are equal or not.*** 3. ***WAP to check whether a given number is positive or negative.*** 4. ***WAP to accept the age of a candidate and citizenship status from the user and determine whether the candidate is eligible for casting vote. Any person who is a citizen and whose age is above 18 are eligible to cast a vote.*** 5. ***WAP to read the value of an integer ‘m’ and display the value of ‘n’ is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0*** |

7A

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| 1. Write a C program to read roll no, name and marks of three subjects and calculate the total, percentage and division.   Test Data : Input the Roll Number of the student :784 Input the Name of the Student :James Input the marks of Physics, Chemistry and Computer Application : 70 80 90 Expected Output : Roll No : 784 Name of Student : James Marks in Physics : 70 Marks in Chemistry : 80 Marks in Computer Application : 90 Total Marks = 240 Percentage = 80.00 Division = First |

8A

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| 1. Write a C program to accept the three sides of a triangle and check whether a triangle is Equilateral, Isosceles or Scalene.   Test Data : 50 50 60 Expected Output : This is an isosceles triangle.  Equilateral triangle: An equilateral triangle is a triangle in which all three sides are equal. In the familiar Euclidean geometry, equilateral triangles are also equiangular; that is, all three internal angles are also congruent to each other and are each 60°.  Isosceles triangle: An isosceles triangle is a triangle that has two sides of equal length.  Scalene triangle: A scalene triangle is a triangle that has three unequal sides, such as those illustrated below: |

8B

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| Accept a temperature in centigrade and display a suitable message |

7B

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| 1. Write a C program to read temperature in centigrade and display a suitable message according to temperature state below :   Temp < 0 then Freezing weather Temp 0-10 then Very Cold weather Temp 10-20 then Cold weather Temp 20-30 then Normal in Temp Temp 30-40 then Its Hot Temp >=40 then Its Very Hot Test Data : 42 Expected Output : Its very hot. |

9A

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| 1. Write a C program to check whether a triangle can be formed by the given value for the angles.   Test Data : 40 55 65 Expected Output : The triangle is not valid.   1. Write a C program to check whether a character is an alphabet, digit or special character.   Test Data : @ Expected Output : This is a special character.   1. Write a C program to check whether an alphabet is a vowel or consonant.   Test Data : k Expected Output : The alphabet is a consonant. |

10A

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| Test Data : 1001 James 800 Expected Output : Customer IDNO :1001 Customer Name :James unit Consumed :800 Amount Charges @Rs. 2.00 per unit : 1600.00 Surchage Amount : 240.00 Net Amount Paid By the Customer : 1840.00 |

10B

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| 1. Write a program in C to accept a grade and declare the equivalent description :  |  |  | | --- | --- | | **Grade** | **Description** | | E | Excellent | | V | Very Good | | G | Good | | A | Average | | F | Fail |   Test Data : Input the grade :A Expected Output : You have chosen : Average |

9B

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| 1. Write a program in C to calculate and print the Electricity bill of a given customer. The customer id., name and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The charge are as follows :  |  |  | | --- | --- | | **Unit** | **Charge/unit** | | upto 199 | @1.20 | | 200 and above but less than 400 | @1.50 | | 400 and above but less than 600 | @1.80 | | 600 and above | @2.00 |   If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/- |

11A

<https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php>

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| ***Please read pg 58.***   1. ***The Marks obtained by a student in 5 different subjects are input through the keyboard. The student gets a division as per the following rules:*** 2. ***Percentage above or equal to 60 – First division*** 3. ***Percentage between 50 and 59 – Second division*** 4. ***Percentage between 40 and 49 – Third division*** 5. ***Percentage less than 40 – fail.***   ***WAP to calculate the division obtained by the student without logical operator.***  ***Read the problems on pg 59.***   1. ***The Marks obtained by a student in 5 different subjects are input through the keyboard. The student gets a division as per the following rules:*** 2. ***Percentage above or equal to 60 – First division*** 3. ***Percentage between 50 and 59 – Second division*** 4. ***Percentage between 40 and 49 – Third division*** 5. ***Percentage less than 40 – fail.***   ***WAP to calculate the division obtained by the student using logical operators.***  ***Read pg 60.*** |

12A

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| 1. ***Read pg 63, 64.*** 2. ***A company insures its drivers in the following cases:*** 3. ***If the driver is married.*** 4. ***If the driver is unmarried, male and above 30 years of age.*** 5. ***If the driver is unmarried, female and above 25 years of age.*** 6. ***In all other cases driver is not insured.***   ***If the marital status, sex and age of the driver are the inputs, WAP to determine whether the driver should be insured or not. Use only logical operators.***  ***Read pg 65*** |

12B

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| 1. ***WAP to calculate the salary as per the following table.***  |  |  |  |  | | --- | --- | --- | --- | | ***Gender*** | ***Years of Service*** | ***Qualifications*** | ***Salary*** | | ***Male*** | ***>=10*** | ***Post-Graduate*** | ***$15000*** | | ***>=10*** | ***Graduate*** | ***$10000*** | | ***<10*** | ***Post-Graduate*** | ***$10000*** | | ***<10*** | ***Graduate*** | ***$7000*** | | ***Female*** | ***>=10*** | ***Post-Graduate*** | ***$12000*** | | ***>=10*** | ***Graduate*** | ***$9000*** | | ***<10*** | ***Post-Graduate*** | ***$10000*** | | ***<10*** | ***Graduate*** | ***$6000*** | |

11B

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| 1. ***The Marks obtained by a student in 5 different subjects are input through the keyboard. The student gets a division as per the following rules:*** 2. ***Percentage above or equal to 60 – First division*** 3. ***Percentage between 50 and 59 – Second division*** 4. ***Percentage between 40 and 49 – Third division*** 5. ***Percentage less than 40 – fail.***   ***WAP to calculate the division obtained by the student using “else if” clauses.***  ***Read pg 62.***   1. ***A company insures its drivers in the following cases:*** 2. ***If the driver is married.*** 3. ***If the driver is unmarried, male and above 30 years of age.*** 4. ***If the driver is unmarried, female and above 25 years of age.*** 5. ***In all other cases driver is not insured.***   ***If the marital status, sex and age of the driver are the inputs, WAP to determine whether the driver should be insured or not. Use only “if” and “else” statements. Do not use Logical operators.*** |

13A

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| ***Read pg 66, 67, 68, 69, 70, 71***   1. ***Any Year is entered through the keyboard, WAP to determine whether the year is leap or not. Use the logical operators && and ||*** 2. ***Any character is entered through the keyboard, WAP to determine whether the character entered is a capital letter, a small case letter, a digit or a special symbol.***   ***The following table shows the range of ASCII values for various characters:***   |  |  | | --- | --- | | ***Characters*** | ***ASCII Values*** | | ***A - Z*** | ***65 - 90*** | | ***a - z*** | ***97 - 122*** | | ***0 - 9*** | ***48 - 57*** | | ***Special symbols*** | ***0 – 47, 58 – 64, 91 – 96, 123 - 127*** | |

14A

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| 1. ***If the three sides of a triangle are entered through the keyboard, write a program to check whether the triangle is valid or not. The triangle is valid if the sum of two sides is greater than the largest of the three sides.*** 2. ***If the three sides of a triangle are entered through the keyboard, WAP to check whether the triangle is isosceles, equilateral, scalene or a right triangle.*** |

14B

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| 1. ***In boxing the weight class of a boxer is decided as per the following table. Write a program that receives weight as input and prints out the boxer’s weight class.***  |  |  | | --- | --- | | ***Boxer Class*** | ***Weight in Pounds*** | | ***Flyweight*** | ***<115*** | | ***Bantamweight*** | ***115 - 121*** | | ***Featherweight*** | ***122 - 153*** | | ***Middleweight*** | ***154 - 189*** | | ***Heavyweight*** | ***>=190*** | |

13B

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| 1. ***A certain grade of steel is graded according to the following conditions:*** 2. ***Hardness must be greater than 50*** 3. ***Carbon content must be less than 0.7*** 4. ***Tensile strength must be greater than 5600***   ***The grades are as follows:***   * ***Grade is 10 if all three conditions are met*** * ***Grade is 9 if conditions (a) and (b) are met*** * ***Grade is 8 if conditions (b) and (c) are met*** * ***Grade 7 if conditions (a) and (c) are met*** * ***Grade 6 if only one conditions is met*** * ***Grade 5 if none of the conditions are met***   ***WAP, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel.*** |

15A

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| 1. ***In digital world colors are specified in Red-Green-Blue (RGB) format, with values of R, G, B varying on an integer scale from 0 to 255. In print publishing the colors are mentioned in Cyan-Magenta-Yellow-Black(CMYK) format, with values of C, M, Y, and K varying on a real scale from 0.0 to 1.0. WAP that converts RGB color to CMYK color as per the following formulae:***   ***White = Max(Red/255, Green/255, Blue/255)***  ***Cyan = ((White-Red/255)/White)***  ***Magenta = ((White – Green/255)/White)***  ***Yellow = ((White – Green/255)/White)***  ***Black = 1 – White***  ***Note that if RGB values are all 0, then the CMY values are all 0 and the K value is 1.*** |

16A

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| 1. ***The Body Mass Index (BMI) is defined as ratio of the weight of a person (in kilograms) to the square of the height (in meters). Write a program that receives weight and height, calculates the BMI, and reports the BMI category as per the following table:***  |  |  | | --- | --- | | ***BMI Category*** | ***BMI*** | | ***Starvation*** | ***<15*** | | ***Anorexic*** | ***15.1 to 17.5*** | | ***Underweight*** | ***17.6 to 18.5*** | | ***Ideal*** | ***18.6 to 24.9*** | | ***Overweight*** | ***25 to 25.9*** | | ***Obese*** | ***30 to 30.9*** | | ***Morbidly Obese*** | ***>=40*** | |

16B

Using conditional operators:

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| 1. ***Using conditional operators determine:*** 2. ***Whether the character entered through the keyboard is a lower case alphabet or not.*** 3. ***Whether a character entered through the keyboard is a special symbol or not.*** 4. ***Write a program using conditional operators to determine whether a year entered through the keyboard is a leap year or not.*** 5. ***WAP to find the greatest of the three numbers entered through the keyboard. Use conditional operators.*** 6. ***WAP to receive value of an angle in degrees and check whether sum of squares of sine and cosine of this angle is equal to 1.*** 7. ***WAP to receive salary. if the salary is between 25000 and 40000 – manager. If the sal is between 15000 and 25000 – accountant. If the salary is less than 15000 – Clerk using conditional operator.*** |

15B

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| 1. ***WAP that receives month and date of birth as input and prints the corresponding Zodiac sign based on the following table:***  |  |  | | --- | --- | | ***Sun Sign*** | ***From - To*** | | ***Capricorn*** | ***Dec 22 – Jan 19*** | | ***Aquarius*** | ***Jan 20 – Feb 17*** | | ***Pisces*** | ***Feb 18 – Mar 19*** | | ***Aries*** | ***Mar 20 – April 19*** | | ***Taurus*** | ***April 20 – May 20*** | | ***Gemini*** | ***May 21 – June 20*** | | ***Cancer*** | ***June 21 – July 22*** | | ***Leo*** | ***July 23 – August 22*** | | ***Virgo*** | ***Aug 23 – Sept 22*** | | ***Libra*** | ***Sept 23 – Oct 22*** | | ***Scorpio*** | ***Oct 23 – Nov 21*** | | ***Sagittarius*** | ***Nov 22 – Dec 21*** | |

17A

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| 1. ***Tell the output of the following program. What is the value of the statement: if (I = 5 || z>50): why?***   ***#include <stdio.h>***  ***#include <stdlib.h>***  ***int main()***  ***{***  ***int i = 4, z = 12;***  ***if(i = 5|| z> 50)***  ***printf("Dean of students affairs\n");***  ***else***  ***printf("Dosa\n");***  ***}*** |

18A

***Use logical operators such as (? And : ) to write the following programs.***

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| 1. ***In a company an employee is paid as under: If his basic salary is less than $ 7500, then HRA = 10% of basic salary and DA = 90% of basic salary. If his salary is either equal to or above $7500, then HRA is $1000 and DA is 98% of basic salary. If the employee’s salary is input through the keyboard write a program to find his gross salary.*** 2. ***Ask the user to enter either 1 or 2. IF the user enters 1 print “You would go to heaven”, if the user enters 2 print “Hell was created with you in mind”, if the user enters any other number other than 1 or 2, print “How about mother earth.”*** 3. ***If the cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss.*** |

18B

***Use logical operators such as (? And : ) to write the following programs.***

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| 1. ***Any integer is input through the keyboard. Write a program to find out whether it is an odd number or an even number.*** 2. ***A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not.*** 3. ***Take two numbers from the user and display the largest.*** 4. ***Take two numbers from the user and display the smallest.*** 5. ***Take three numbers from the user and display the largest.*** 6. ***Take three numbers from the user and display the smallest.*** 7. ***If the ages of Ram, Shyam and Ajay are input through the keyboard, WAP to determine the youngest of the three. Display the name and the age.*** 8. ***Write a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees.*** |

17B

***Use logical operators such as (? And : ) to write the following programs.***

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| 1. ***WAP to ask user to enter a number less than 10, if the user enters a number less than 10, print : “What an obedient servant you are!” else print: “Wrong number”*** 2. ***While purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 1000. If quantity and price per item are input through the keyboard, write a program to calculate the total expenses.*** 3. ***WAP to accept the current year and the year in which the employee joined the organization. If the number of years for which the employee has served the organization is greater than 3, then a bonus of $2500 is given to the employee. If the years of service are not greater than 3, then print bonus is 0.*** |

19A

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| 1. ***Find the absolute value of a number entered through the keyboard and if the input is not valid print invalid input.*** 2. ***Given the length and breadth of a rectangle, write a program to find whether the area of the rectangle is greater than its perimeter. For Example, the area of the rectangle with length = 5 and breadth = 4 is greater than its perimeter.*** |

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