1. **Write a defining table and a JavaScript Program that asks a user for a volume in quarts and then converts that value into liters. Your program should correctly handle real numbers such as 7.54**

**Solution :**

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| **Input** | **Processing** | **Output** |
| **Volume in Quarts** | **Volume in Liters = Volume in Quarts / 1.057** | **Return Volume in Liters** |

**let** prompt = require("prompt-sync")();

**let** v = prompt("volume in quarts:");

**let** volumeInLiters = parseFloat(v)/1.057;

console.log(volumeInLiters);

1. **Write a defining table and a JavaScript program that asks a user for a distance in kilometers and then converts that value into miles. Your program should correctly handle real numbers.**

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| **Input** | **Processing** | **Output** |
| **Distance in Kilometers** | **Miles = Distance in K.m \*1.609** | **Distance in Miles** |

**let** prompt = require("prompt-sync")();

**let** k = prompt("Distance in Kilometers:");

**let** miles = parseFloat(k)\*1.609;

console.log(miles);

1. **An employee at a grocery store must frequently place boxes of cans in stacks. Write a defining table and a program that allows him to enter the total number of boxes and the number of boxes he will place in each stack. Your program must output the number of stacks he will have to make. All of the stacks except the last one must have the exact number of boxes that the employee specifies. The last stack must have the exact number or fewer boxes. For example, if the employee enters 74 total boxes and 6 boxes in each stack your program must output 13.**

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| **Input** | **Processing** | **Output** |
| **Total Number of boxes**  **Maximum number of boxes per stack** | **Number of stacks = (Total number of boxes / maximum boxes per stack).**  **Round numbers of stacks to higher value and return the integer.** | **Return number of stacks.** |

**let** prompt = require("prompt-sync")();

**let** T = prompt("Total number of boxes:");

**let** S = prompt("Maximum number of boxes per stack:");

**let** U = parseFloat(T)/parseFloat(S)

console.log(Math.ceil(U));

1. **A teacher frequently divides her class into teams. Write a defining table and a program that allows her to enter the number of students in her class and the number of teams she wants. The number of members on each team must be as balanced as possible. In other words, if not all the teams can have the same number of members then some of the teams will have only one more member than the other teams. Your program must output a phrase that tells the teacher how to divide her class into teams. For example, if the teacher entered 22 class members and 5 teams, your program must output “ 2 teams with 5 members and 3 teams with 4 members.” Your program must list the larger teams first.**

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| **Input** | **Processing** | **Output** |
| **Total Number of members**  **Total number of teams** | **Minimum Number of members per team = Round to the floor value (Total number of members / number of teams).**  **Maximum members per team = Minimum number of members per team +1**  **Number of teams with max number of members = [(total number of members/number of teams) – minimum number of members per team] \* number of teams** | **Return = Number of teams with max number “with”maximum members per team “members and “ ( Total number of teams – number of teams with max number of members) “with” Minimum number of members per team.** |

**let** prompt = require("prompt-sync")();

**let** totalMembers = prompt("total number of members:");

**let** totalTeams = prompt("Total number of teams:");

**let** minPerTeam = Math.round(totalMembers/totalTeams);

**let** maxPerTeam = minPerTeam + 1;

**let** numberOfTeamsWithMaxNumber = Math.floor(((totalMembers/totalTeams) - minPerTeam) \* totalTeams) ;

**let** remTeams = totalTeams - numberOfTeamsWithMaxNumber ;

console.log(numberOfTeamsWithMaxNumber + " teams with" + maxPerTeam + "members and" + remTeams + "teams with " + minPerTeam + "members" );

1. **Write a defining table and a JavaScript program to compute the mileage of a vehicle. Your Program should allow the user to enter the beginning and ending odometer readings and the number of gallons of gasoline used and should output the mileage in miles per gallon. Your program should correctly handle real numbers.**

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| **Input** | **Processing** | **Output** |
| **Beginning Odometer**  **Ending Odometer**  **Number of gallons of gasoline** | **Mileage per gallon = (Beginning Odometer – Ending Odometer) / Number of gallons of gasoline** | **Return mileage per gallon** |

**let** prompt = require("prompt-sync")();

**let** startOdometer = prompt("Beginning Odometer :");

**let** endingOdometer = prompt("Ending Odometer: ")

**let** totalGasoline = prompt( "Number of gallons of gasoline: ")

**let** milage = (endingOdometer - startOdometer)/ totalGasoline;

console.log(milage);

1. **When you exercise to strengthen your heart, you should maintain your heart rate within a range. To find that range, subtract your age from 220. This difference is your maximum heart rate per minute. Your heart simply will not beat faster than this maximum (220 -age). When exercising to strengthen your heart, you should keep your heart rate between 65% and 85% of your heart’s maximum. Write a defining table and a JavaScript program that asks for a person’s age and computes and outputs the slowest and fastest rates necessary to strengthen his heart.**

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| **Input** | **Processing** | **Output** |
| **age** | **Max = 220 – age**  **Maximum heartbeat necessary = Max \* 0.85**  **Minimum heartbeat necessary = Max \* 0.65** | **Return Maximum heatbeat necessary**  **Return Minimum heartbeat necessary.** |

**let** prompt = require("prompt-sync")();

**let** age = prompt( "Your age :");

**let** max = 220 - age ;

**let** maxNecessary = max \* 0.85;

**let** minNecessary = max \* 0.65;

console.log("slowest heartbeat necessary is " + minNecessary);

console.log("fastest heartbeat necessary is" + maxNecessary);

1. **Write a defining table and a JavaScript program to compute and output an employee’s after tax pay. Your program will read from the keyboard the number of regular hours that an employee worked and the employee’s wage and then compute that employee’s after tax pay. Tax is 15% of the employee’s gross pay. Your program should correctly handle real numbers.**

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| **Input** | **Processing** | **Output** |
| **Number of hour worked**  **Wage rate** | **Gross pay = Number of hours \* wage rate**  **Net pay = Gross pay \* 0.85** | **Net pay** |

**let** prompt = require("prompt-sync")();

**let**  hrs = prompt( "Number of hours worked :");

**let** wageRate = prompt("Wage rate per hour") ;

**let** grossPay = wageRate \* hrs;

**let** netPay = grossPay \* 0.85;

console.log(netPay);