1. In this exercise, you will roll a pair of dice until the numbers add up to a given number. You can assume that the given number is 2, 3, 6, or 12. Using pseudocode, write an algorithm that returns the number of times the dice is rolled to achieve this number.

Class DiceRoller {

Constructor(roll\_count) {  
 roll\_count ← 0

This roll\_count ← roll\_count

}

Method rollDice() {

Let dice1 ← Floor number((Random floating point number, within 0 (inclusive) and 1 (exclusive)) \* 6) + 1

Let dice2 ← Floor number((Random floating point number, within 0 (inclusive) and 1 (exclusive)) \* 6) + 1

Return dice1 + dice2

}

Method rollUntilTarget(target\_sum) {

If (target\_sum >= 7 and target\_sum <= 12 and target\_sum is an integer) then {

While (true) {

Let sum ← this rollDice()

This roll\_count++

If (sum == target\_sum) then.. {

Return this roll\_count

Break loop

}

}

} Else then.. {

Print ("Invalid entry. Please enter a whole number between 7 and 12 (inclusive) next time.")

Return -1

}

}

}

Let diceRoller ← new DiceRoller()

Let target\_sum ← Convert to float(Prompt("Insert a target sum (Must be a whole number and within the bounds of 7 and 12 inclusive): "))

Let rolls ← diceRoller.rollUntilTarget(target\_sum)

If (rolls NOT == -1) then.. {

Print(“Number of rolls to achieve sum: " + rolls)

}

1. Create a JavaScript function based on the algorithm in question one.

class DiceRoller {

constructor(roll\_count) {

roll\_count = 0;

this.roll\_count = roll\_count;

}

rollDice() {

let dice1 = Math.floor(Math.random() \* 6) + 1;

let dice2 = Math.floor(Math.random() \* 6) + 1;

return dice1 + dice2;

}

rollUntilTarget(target\_sum) {

if (target\_sum >= 7 && target\_sum <= 12 && Number.isInteger(target\_sum)) {

while (true) {

let sum = this.rollDice();

this.roll\_count++;

if (sum == target\_sum) {

return this.roll\_count;

break;

}

}

} else {

console.log("Invalid entry. Please enter a whole number between 7 and 12 (inclusive) next time.");

return -1;

}

}

}

let diceRoller = new DiceRoller();

let target\_sum = parseInt(prompt("Insert a target sum (Must be a whole number and within the bounds of 7 and 12 inclusive): "));

let rolls = diceRoller.rollUntilTarget(target\_sum);

if (rolls !== -1) {

console.log("Number of rolls to achieve sum: " + rolls);

}