Project: Variables

On command line, create a file called *'variables_project.js'* in your *ASCProjects/week1/day1* directory.

Part 1 - VARIABLES GYMNASTICS

Task:
Trace the output of the following programs.

Program #1:

```
let x;
x = 1;
```

Program #2:

```
let x;
x = 1;

console.log("The value of x is", x);
```

Program #3:

```
let newVar = 'All Star Code!';
console.log(newvar);
```

Program #4:

```
let var1 = 20;
let var2 = 30;
let var3 = 'ABC';
let var4 = 'def';
let var5 = '20';
let var6 = '30';

let answer1 = var1 + var2;
let answer2 = var3 + var4;
let answer3 = var5 + var6;

console.log(answer1, answer2, answer3);
```

Program #5:

```
let num1 = 5;
let num2 = 3;
num1 = 10;

let sum = num1 + num2;
console.log("Sum:", sum);
```

Program #6:

```
let num1 = 5;
let num2 = 3;

let sum = num1 + num2;
num1 = 10;
console.log("Sum:", sum);
```

Program #7:

```
const luckyNumber = 8;
luckyNumber = 2;

console.log(luckyNumber);
```

Part 2 - FIXING REDUNDANCY

Copy and paste the following code to your script:

```
// We're going to earn a profit by reselling tickets
// We bought some tickets to see Billie Eilish
// 4 regular tickets for $45 each and 2 front row tickets for $75 each
console.log('Cost:', (45 * 4 + 75 * 2));

// We're reselling the tickets for 50% above the original price
console.log('Selling price:', (45 * 4 + 75 * 2) * 1.5);

// But StubHub, the online ticket selling platform, charges a 20% seller fee
console.log('Seller fee:', (45 * 4 + 75 * 2) * 1.5 * 0.2);

// Our total profit:
console.log('Profit:', (45 * 4 + 75 * 2) * 1.5 - (45 * 4 + 75 * 2) - (45 * 4 + 75 * 2) * 1.5 * 0.2);
```

Task:

This profit-calculation program functions properly, but the calculations are **long** and **redundant**. Modify the program by including **variables** to reduce the redundancy in the program.

Extra Credit - VARIABLES, VARIABLES EVERYWHERE

```
let x = 4;
let y = 5;
const z = -3;

y = y + z;
x = x * y - 2;
x = y ** (-z);
y - 1;
```

Task:
Based on the program above, predict the values of `x`, `y`, and `z` at the end of the program.