

mKhan_HW#1

2023-08-29

Problem 1

```
round(8 + 9 - 7 / 3 ^ 0.3, digits=0)
round(log2(sqrt((15+16)/(14+12))), digits=2)
round(((11 + sin(pi/4)) / (factorial(3) + abs(-10)))^2, digits=0)
round( 6 + 5 - 4 / 3^2 ,digits = 0)
round(exp(sqrt((14 + 13) / (12 + 11))), digits=0)
round((((11 + factorial(12)) / (factorial(13) + 14))^2, digits = 2)
```

Problem 2

```
RF <- c(2.6, 3.05, 3.74, 3.48, 5.49, 4.25, 2.57, 2.18, 3.14, 4.82, 3.28, 3.01)
RF_months <- c('Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec')
round(mean(RF), digits = 2)
RF_months[RF == min(RF)]
RF_months[RF == max(RF)]
```

Problem 3

```
H2 <- c(2700, 2600, 3050, 2900, 3000, 2500, 2600, 3000, 2800, 3200, 2800, 3400)
H2_months <- c('Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec')
sum(H2)
H2_months[which(diff(H2, differences = 1) == max(diff(H2, differences = 1))) + 1]
H2_months[which(diff(H2, differences = 1) == min(diff(H2, differences = 1))) + 1]
```

Problem 4

```
arr <- c(1, -2, 3, -4, 5, 100)
each multiplied by -1 product_arr <- arr * -1
product_arr[ product_arr > 0]
seq_to_fifty <- seq(1:50)
check_if_even <- seq_to_fifty %% 2 ==0
seq_to_fifty <- seq_to_fifty[check_if_even] seq_to_fifty
```

```
calculate_mean <- function(values) { sum(values) / length(values) }
```

Problem 5

```
PrintSquare <- function() {  
  for (i in 1:1000) {  
    if(sqrt(i) %% 1 == 0) {  
      print(i)  
    }  
  }  
}
```

Problem 6

```
TwinPrimes <- function(n) {  
  primes <- c(2, 3)  
  for (i in 4:n) {  
    is_prime <- TRUE  
  
    for (j in primes) {  
      if (i %% j == 0) {  
        is_prime <- FALSE  
        break  
      }  
    }  
  
    if (is_prime) {  
      primes <- c(primes, i)  
    }  
  }  
  prime_diffs <- diff(primes) TwinPrimes <- sum(prime_diffs == 2) return(TwinPrimes) }  
TwinPrimes(32)
```