

Addition

Paste the code below into R. At the command prompt type `addition()`.

```
addition <- function(x = 0:10, y = 0:10, n = 50){
  cat("Welcome to addition practice with R! Have fun!", "\n", "\n")
  if(length(x) == 1) x <- c(x, x)
  if(length(y) == 1) y <- c(y, y)
  for(i in 1:n){
    xx <- sample(x, 1, replace = T)
    yy <- sample(y, 1, replace = T)
    repeat{
      wrong <- sample(c("You're not as smart as you look!",
                        "You boo-boo head!", "Ouch! That hurts!",
                        "Oops!", "Oh no, not again!?", "Use your brains!"), 1)
      right <- sample(c("You're a cutie pie!", "Way to go!",
                       "You are the greatest!", "You are the smartest!",
                       "Congratulations!", "You're the best!"), 1)
      question <- paste("What is", xx, "+", yy, "?")
      cat(question, "\n")
      ans <- scan(n = 1, quiet = T)
      if(ans != xx + yy) {
        cat("Wrong answer!", wrong, "Try again!\n")
        next
      } else {
        cat("Right answer!", right, "Keep going!\n")
        break
      }
    }
  }
  cat("Thanks for playing!", fill = 1)
}
```

Subtraction

Paste the code below into R. At the command prompt type `subtraction()`.

```
subtraction <- function(x = 0:10, y = 0:10, negatives = FALSE, n = 50){
  cat("Welcome to subtraction practice with R! Have fun!", "\n", "\n")
  if(length(x) == 1) x <- c(x, x)
  if(length(y) == 1) y <- c(y, y)
  for(i in 1:n){
    xx <- sample(x, 1, replace = T)
    if(negatives) {
      yy <- sample(y, 1, replace = T)
    } else {
      yy <- sample(c(min(y):xx), 1, replace = T)
    }
    repeat{
      wrong <- sample(c("You're not as smart as you look!",
                        "You boo-boo head!", "Ouch! That hurts!",
                        "Oops!", "Oh no, not again!?", "Use your brains!"), 1)
      right <- sample(c("You're a cutie pie!", "Way to go!",
                        "You are the greatest!", "You are the smartest!",
                        "Congratulations!", "You're the best!"), 1)
      question <- paste("What is", xx, "-", yy, "?")
      cat(question, "\n")
      ans <- scan(n = 1, quiet = T)
      if(ans != xx-yy) {
        cat("Wrong answer!", wrong, "Try again!\n")
        next
      } else {
        cat("Right answer!", right, "Keep going!\n")
        break
      }
    }
  }
  cat("Thanks for playing!", fill = 1)
}
```

Multiplication

Paste the code below into R. At the command prompt type `multiplication()`.

```
multiplication <- function(x = 0:10, y = 0:10, n = 50){
  cat("Welcome to multiplication practice with R! Have fun!", "\n", "\n")
  if(length(x) == 1) x <- c(x, x)
  if(length(y) == 1) y <- c(y, y)
  for(i in 1:n){
    xx <- sample(x, 1, replace = T)
    yy <- sample(y, 1, replace = T)
    repeat{
      wrong <- sample(c("You're not as smart as you look!",
                        "You boo-boo head!", "Ouch! That hurts!",
                        "Oops!", "Oh no, not again!?", "Use your brains!"), 1)
      right <- sample(c("You're a cutie pie!", "Way to go!",
                       "You are the greatest!", "You are the smartest!",
                       "Congratulations!", "You're the best!"), 1)
      question <- paste("What is", xx, "x", yy, "?")
      cat(question, "\n")
      ans <- scan(n = 1, quiet = T)
      if(ans != xx*yy) {
        cat("Wrong answer!", wrong, "Try again!\n")
        next
      } else {
        cat("Right answer!", right, "Keep going!\n")
        break
      }
    }
  }
  cat("Thanks for playing!", fill = 1)
}
```

Division

Paste the code below into R. At the command prompt type `division()`.

```
division <- function(x = 0:10, y = 0:10, n = 50){
  cat("Welcome to division practice with R! Have fun!", "\n", "\n")
  if(length(x) == 1) x <- c(x, x)
  if(length(y) == 1) y <- c(y, y)
  for(i in 1:n){
    xx <- sample(x, 1, replace = T)
    yy <- sample(y, 1, replace = T)
    repeat{
      wrong <- sample(c("You're not as smart as you look!",
                        "You boo-boo head!", "Ouch! That hurts!",
                        "Oops!", "Oh no, not again!?", "Use your brains!"), 1)
      right <- sample(c("You're a cutie pie!", "Way to go!",
                        "You are the greatest!", "You are the smartest!",
                        "Congratulations!", "You're the best!"), 1)
      question <- paste("What is", xx, "/", yy, "?")
      cat(question, "\n")
      ans <- scan(n = 1, quiet = T)
      if(ans != xx/yy) {
        cat("Wrong answer!", wrong, "Try again!\n")
        next
      } else {
        cat("Right answer!", right, "Keep going!\n")
        break
      }
    }
  }
  cat("Thanks for playing!", fill = 1)
}
```