Aritmatic

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Abstract

In this article we give examples of basic arithmatic in R.

1 Addition

Addition in R is done with + sign[1]. Here is an exmaple:

```
x <- 4
y <- 3

x+y

## [1] 7
```

2 Subtraction

For subtraction in R, we use the - sign. Here is an example:

```
x <- 8
y <- 3
x - y

## [1] 5
```

3 Multiplication

For multiplication, we use an * sign. Here is an example:

[1] This is detailed expertly in Ousley's fine book on additon

```r
x <- 5
y <- 6

x*y

## [1] 30
```

4 Division

Finally, we divide by using the /. Here is an exmaple:

```r
x <- 15
y <- 5

x/y

## [1] 3
```

5 Ploting

Although this has little to do with basic arithmatic, I thought it would be useful to show some ploting.

```r
x <- seq(1, 10, 0.1)
```

This creates a list 1 through 10 by 0.1 (1.1, 1.2, 1.3, etc.)

```
##  [1]  1.0  1.1  1.2  1.3  1.4  1.5  1.6  1.7  1.8  1.9  2.0  2.1  2.2  2.3
## [15]  2.4  2.5  2.6  2.7  2.8  2.9  3.0  3.1  3.2  3.3  3.4  3.5  3.6  3.7
## [29]  3.8  3.9  4.0  4.1  4.2  4.3  4.4  4.5  4.6  4.7  4.8  4.9  5.0  5.1
## [43]  5.2  5.3  5.4  5.5  5.6  5.7  5.8  5.9  6.0  6.1  6.2  6.3  6.4  6.5
## [57]  6.6  6.7  6.8  6.9  7.0  7.1  7.2  7.3  7.4  7.5  7.6  7.7  7.8  7.9
## [71]  8.0  8.1  8.2  8.3  8.4  8.5  8.6  8.7  8.8  8.9  9.0  9.1  9.2  9.3
## [85]  9.4  9.5  9.6  9.7  9.8  9.9 10.0
```

Now let's create a y varible:

```r
y <- x^2
```

This squares all the x values:

```
##  [1]   1.00   1.21   1.44   1.69   1.96   2.25   2.56   2.89   3.24   3.61
## [11]   4.00   4.41   4.84   5.29   5.76   6.25   6.76   7.29   7.84   8.41
## [21]   9.00   9.61  10.24  10.89  11.56  12.25  12.96  13.69  14.44  15.21
## [31]  16.00  16.81  17.64  18.49  19.36  20.25  21.16  22.09  23.04  24.01
## [41]  25.00  26.01  27.04  28.09  29.16  30.25  31.36  32.49  33.64  34.81
## [51]  36.00  37.21  38.44  39.69  40.96  42.25  43.56  44.89  46.24  47.61
## [61]  49.00  50.41  51.84  53.29  54.76  56.25  57.76  59.29  60.84  62.41
## [71]  64.00  65.61  67.24  68.89  70.56  72.25  73.96  75.69  77.44  79.21
## [81]  81.00  82.81  84.64  86.49  88.36  90.25  92.16  94.09  96.04  98.01
## [91] 100.00
```

We can now create a dataframe this way:

```
df <- data.frame(x,y)
df
```

```
##       x      y
## 1   1.0   1.00
## 2   1.1   1.21
## 3   1.2   1.44
## 4   1.3   1.69
## 5   1.4   1.96
## 6   1.5   2.25
## 7   1.6   2.56
## 8   1.7   2.89
## 9   1.8   3.24
## 10  1.9   3.61
## 11  2.0   4.00
## 12  2.1   4.41
## 13  2.2   4.84
## 14  2.3   5.29
## 15  2.4   5.76
## 16  2.5   6.25
## 17  2.6   6.76
## 18  2.7   7.29
## 19  2.8   7.84
## 20  2.9   8.41
## 21  3.0   9.00
## 22  3.1   9.61
## 23  3.2  10.24
## 24  3.3  10.89
## 25  3.4  11.56
## 26  3.5  12.25
## 27  3.6  12.96
## 28  3.7  13.69
## 29  3.8  14.44
```

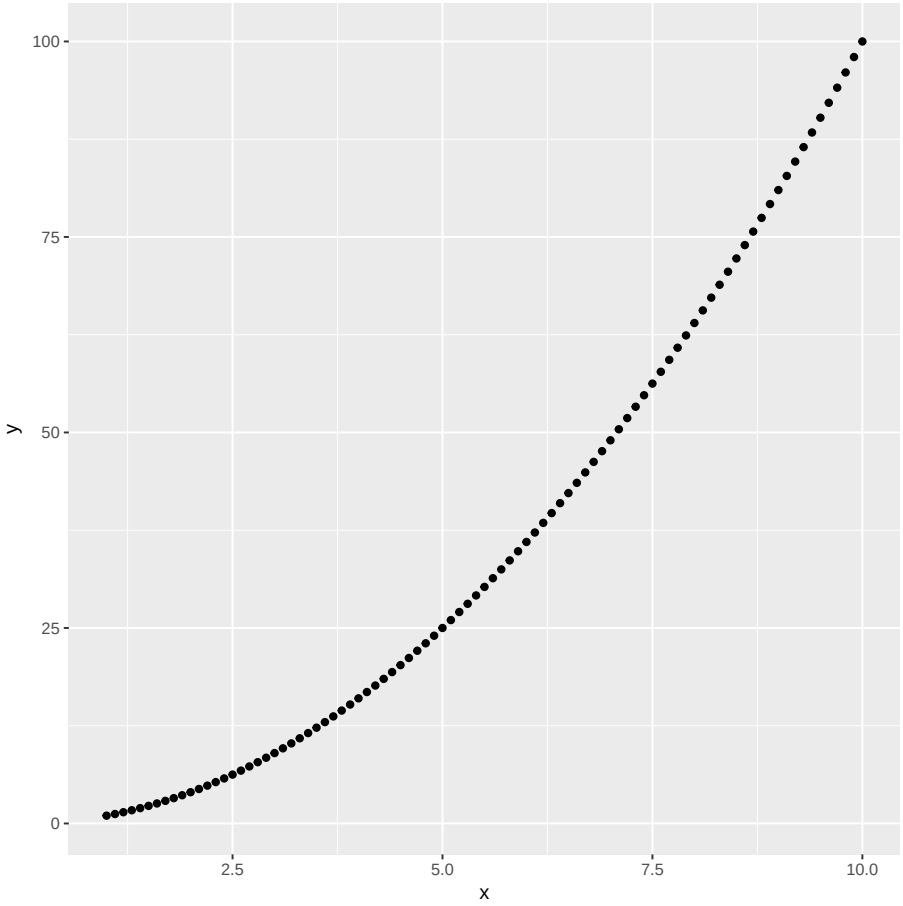
```
## 30  3.9  15.21
## 31  4.0  16.00
## 32  4.1  16.81
## 33  4.2  17.64
## 34  4.3  18.49
## 35  4.4  19.36
## 36  4.5  20.25
## 37  4.6  21.16
## 38  4.7  22.09
## 39  4.8  23.04
## 40  4.9  24.01
## 41  5.0  25.00
## 42  5.1  26.01
## 43  5.2  27.04
## 44  5.3  28.09
## 45  5.4  29.16
## 46  5.5  30.25
## 47  5.6  31.36
## 48  5.7  32.49
## 49  5.8  33.64
## 50  5.9  34.81
## 51  6.0  36.00
## 52  6.1  37.21
## 53  6.2  38.44
## 54  6.3  39.69
## 55  6.4  40.96
## 56  6.5  42.25
## 57  6.6  43.56
## 58  6.7  44.89
## 59  6.8  46.24
## 60  6.9  47.61
## 61  7.0  49.00
## 62  7.1  50.41
## 63  7.2  51.84
## 64  7.3  53.29
## 65  7.4  54.76
## 66  7.5  56.25
## 67  7.6  57.76
## 68  7.7  59.29
## 69  7.8  60.84
## 70  7.9  62.41
## 71  8.0  64.00
## 72  8.1  65.61
## 73  8.2  67.24
## 74  8.3  68.89
```

```
## 75  8.4  70.56
## 76  8.5  72.25
## 77  8.6  73.96
## 78  8.7  75.69
## 79  8.8  77.44
## 80  8.9  79.21
## 81  9.0  81.00
## 82  9.1  82.81
## 83  9.2  84.64
## 84  9.3  86.49
## 85  9.4  88.36
## 86  9.5  90.25
## 87  9.6  92.16
## 88  9.7  94.09
## 89  9.8  96.04
## 90  9.9  98.01
## 91 10.0 100.00
```

Finally we can use ggplot to get a plot, do not forget the library:

```
library(ggplot2)

ggplot()+
  geom_point(data = df, aes(x = x, y = y))
```


100
75
50
25
0
y
2.5
5.0
7.5
10.0
x