Rania — 2025-01-17 — PS 1

Waves

Rania

Exercise Section 1-4

Section 1

1.1-1.9

+1.1-+1.8

In[156]:=

```
1 + 2 + 3
1 + 2 + 3 + 4 + 5
1 × 2 × 3 × 4 × 5
5 × 5
3 ^ 4
10 ^ 12
3 ^ (7 × 8)
(4 - 2) * (3 + 4)
29 000 * 73
-3 + -2 + -1 + 0 + 1 + 2 + 3
24 / 3
5 ^ 100
100 - 5 ^ 2
6 * 5 ^ 2 + 7
3 ^ 2 - 2 ^ 3
2 ^ 3 * 3 ^ 2
2 * (8 - 11)
```

Out[156]=

6

Out[157]=

15

Out[158]=

120

Out[159]=

25

Out[160]=

81

Out[161]=

1 000 000 000 000

Out[162]=

523 347 633 027 360 537 213 511 521

Very nice! I didn't mean for you to do all the bonus exercises, but good on you!

The one thing I see is that is off is on p. 3. You got the right answers, but didn't do what Wolfram was wanting. My comment on p. 3 explains.

10/10

Out[163]=
14

Out[164]=
2 117 000

Out[165]=
0

Out[166]=
8

Out[167]=
7 888 609 052 210 118 054 117 285 652 827 862 296 732 064 351 090 230 047 702 789 306 640 625

Out[168]=
75

Out[169]=
157

Out[170]=
1

Out[171]=
72

Out[172]=
−6

Section 2

2.1-2.5

+2.1-+2.8

In[173]:=
```
Plus[7, 6, 5]
Times[2, Plus[3 + 4]]
Max[Times[6 * 8], Times[5 * 9]]
RandomInteger[1000]
Plus[RandomInteger[10], 10]
Times[5, 4, 3, 2]
Subtract[2, 3]
Times[Plus[8 + 7], Plus[9 + 2]]
Divide[Subtract[26, 89], 9]
Subtract[100, Power[5, 2]]
Max[3^5, 5^3]
Times[3, Max[4^3, 3^4]]
Plus[RandomInteger[1000], RandomInteger[1000]]
```

Out[173]=
```
18
```

Out[174]=
```
14
```

Out[175]=
```
48
```

Out[176]=
```
186
```

Out[177]=
```
13
```

Out[178]=
```
120
```

Out[179]=
```
-1
```

Out[180]=
```
165
```

Out[181]=
```
-7
```

Out[182]=
```
75
```

Out[183]=
```
243
```

Out[184]=
```
243
```

Out[185]=
```
448
```

When you wrote Plus[3+4] it works, but Wolfram was trying to get you to write Plus[3,4].

Similar for Times[6*8]. He was trying to get you to write Times[6,8].

The idea of this group of exercises was to show you that deep down everything in the Wolfram language is functions operating on lists of arguments. The symbols + * / - are just shorthands for things we do so often that it would be tiring to always have to write out what they are shorthands for.

Section 3

3.1-3.11

+3.1 -+3.5

In[186]:=
```
Range[4]
Range[100]
Reverse[Range[4]]
Reverse[Range[50]]
Join[Range[4], Reverse[Range[4]]]
ListPlot[Join[Range[100], Reverse[Range[100]]]]
Range[RandomInteger[10]]

Reverse[Reverse[Range[10]]] ==
 Range[10]
Join[{1, 2}, Join[{3, 4}, {5}]] ==
 Range[5]
Join[Range[10], Join[Range[10], Range[5]]] == Join[Range[10], Range[10], Range[5]]
Reverse[Join[Range[20], Reverse[Range[20]]]] == Join[Range[20], Reverse[Range[20]]]

Reverse[Reverse[Range[4]]]
Join[Range[5], Reverse[Range[4]]]
Join[Reverse[Range[3]], Reverse[Range[4]], Reverse[Range[5]]]

ListPlot[{10, 11, 12, 13, 14}]

Join[Join[Range[10], Reverse[Range[10]]], Range[10]] ==
 Join[Range[10], Reverse[Range[10]], Range[10]]
```

Out[186]=
```
{1, 2, 3, 4}
```

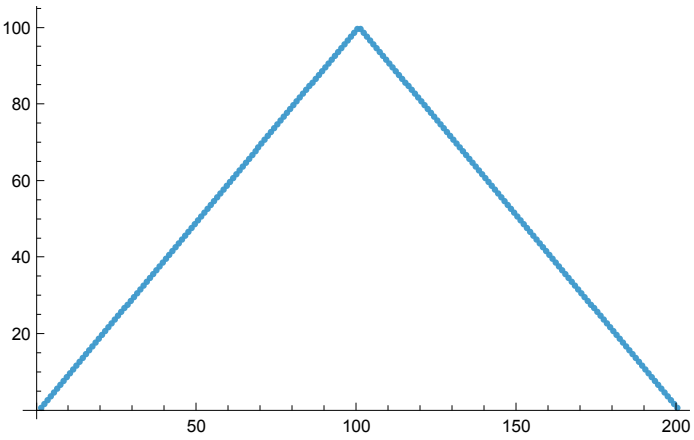
Out[187]=
```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22,
 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42,
 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62,
 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81,
 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100}
```

Out[188]=
```
{4, 3, 2, 1}
```

Out[189]=
```
{50, 49, 48, 47, 46, 45, 44, 43, 42, 41, 40, 39, 38, 37,
 36, 35, 34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 20,
 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1}
```

Out[190]=
```
{1, 2, 3, 4, 4, 3, 2, 1}
```

Out[191]=



Out[192]=

```
{}
```

Out[193]=

```
True
```

Out[194]=

```
True
```

Out[195]=

```
True
```

Out[196]=

```
True
```

Out[197]=

```
{1, 2, 3, 4}
```

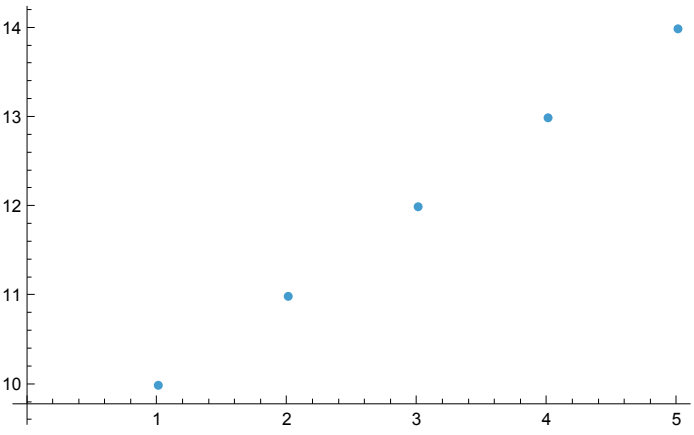
Out[198]=

```
{1, 2, 3, 4, 5, 4, 3, 2, 1}
```

Out[199]=

```
{3, 2, 1, 4, 3, 2, 1, 5, 4, 3, 2, 1}
```

Out[200]=



Out[201]=

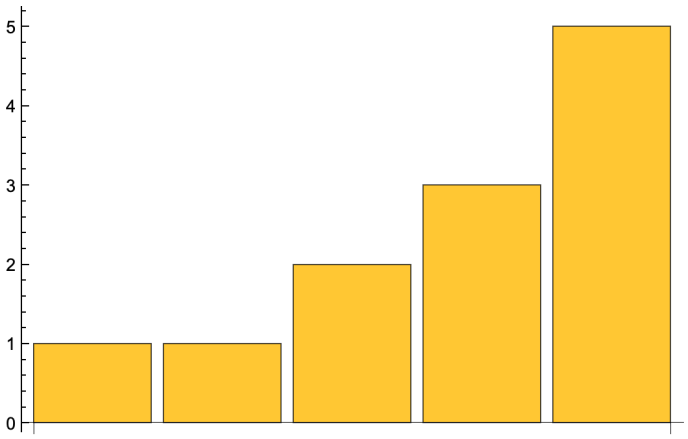
```
True
```

Section 4

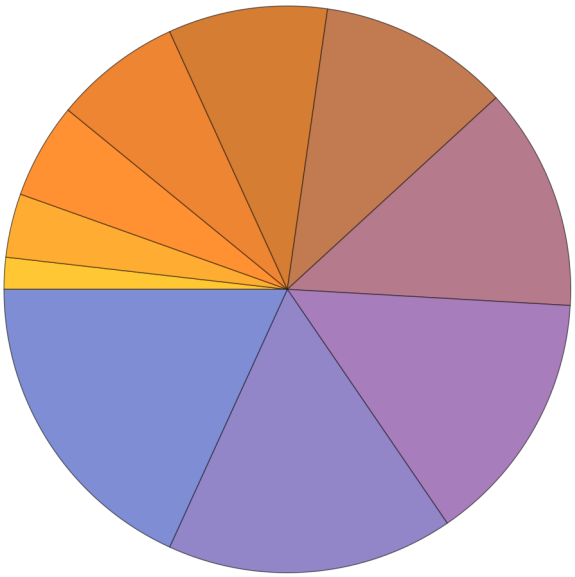
In[202]:=

```
BarChart[{1, 1, 2, 3, 5}]
PieChart[Range[10]]
BarChart[Reverse[Range[20]]]
Column[{1, 2, 3, 4, 5}]
NumberLinePlot[{1, 4, 9, 16, 25}]
PieChart[{1, 1, 1, 1, 1, 1, 1, 1, 1, 1}]
Column[{PieChart[{1}], PieChart[{1, 1}], PieChart[{1, 1, 1}]}]
{PieChart[{1}], PieChart[{1, 1}], PieChart[{1, 1, 1}]}
BarChart[Join[Range[10], Reverse[Range[9]]]]
{PieChart[Range[10]], BarChart[Range[10]], ListLinePlot[Range[10]]}

listSection4 = {1, 1, 2, 3, 5, 8, 13, 21, 34, 55}
{PieChart[listSection4], BarChart[listSection4]}

Column[{NumberLinePlot[Range[5]], NumberLinePlot[Range[5]] }]

NumberLinePlot[{1 / 2, 1 / 2, 1 / 4, 1 / 5, 1 / 6, 1 / 7, 1 / 8, 1 / 9}]
```

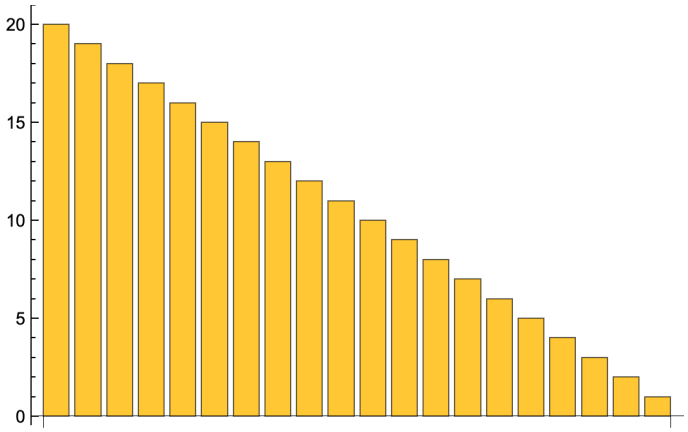
Out[202]=



Out[203]=



Out[204]=

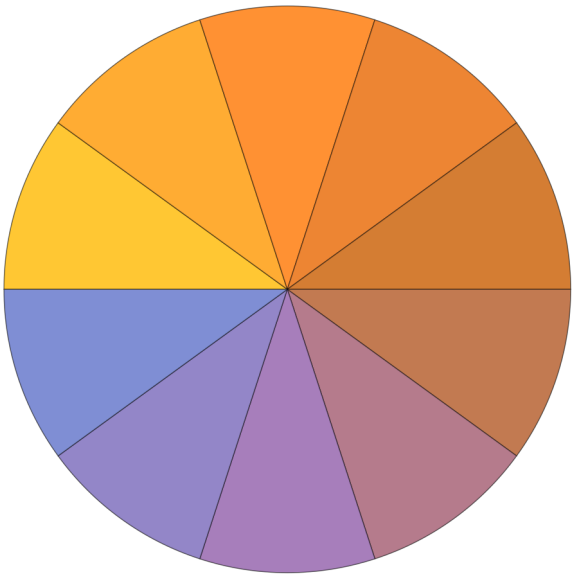


Out[205]=

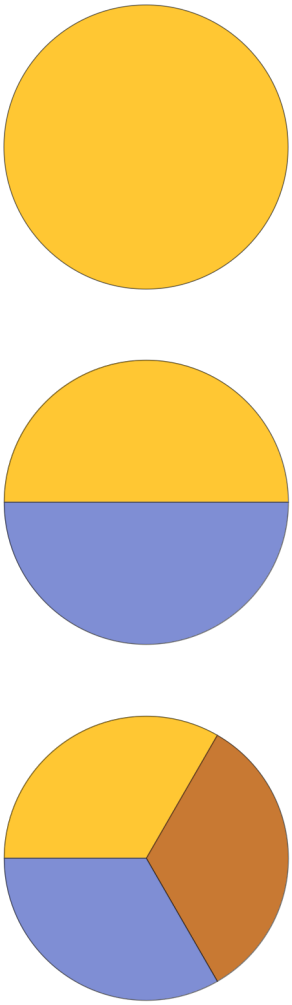
1
2
3
4
5

Out[206]=

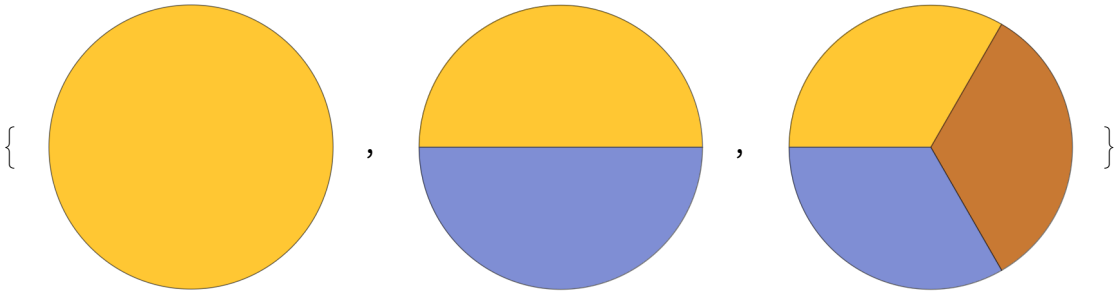
Out[207]=



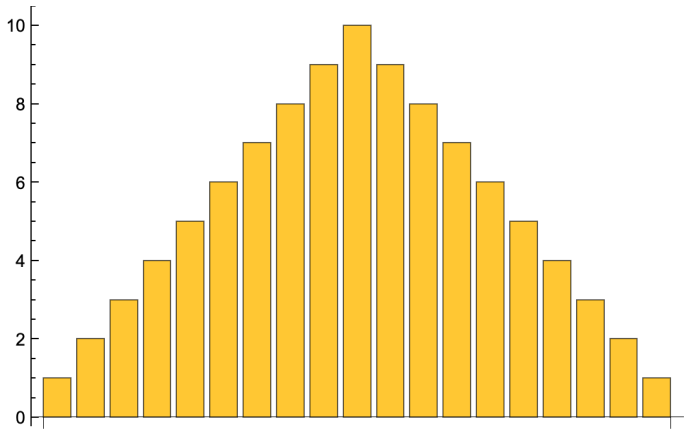
Out[208]=



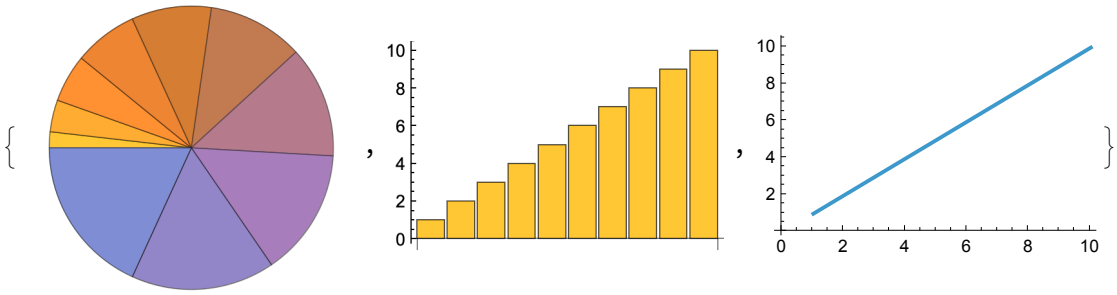
Out[209]=



Out[210]=



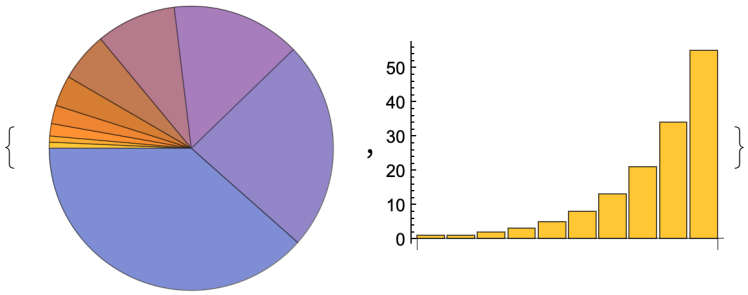
Out[211]=



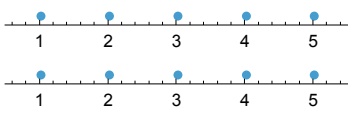
Out[212]=

```
{1, 1, 2, 3, 5, 8, 13, 21, 34, 55}
```

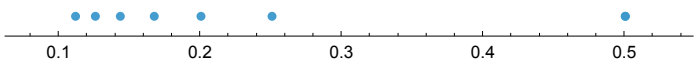
Out[213]=



Out[214]=



Out[215]=



In[216]:=

In[217]:=