

Math test 2019, part 1

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Exercise 1a

$$292.32m \cdot 72 = ? \, dm$$

Solution 1a:

$$\begin{aligned} 292.32m \cdot 72 &= \\ 292.32 \cdot 1m \cdot 72 &= \\ 292.32 \cdot 10dm \cdot 72 &= \\ 2923.2dm \cdot 72 &= \\ 2923.2 \cdot 72dm &= \\ \{\text{calculate...}\} &= \\ 210470.4dm & \end{aligned}$$

`_1a_dm_number` = 210470.4

Exercise 1b

$$16208 + q = 35692 - 7012$$

Solution 1b:

$$\begin{aligned}16208 + q &= 35692 - 7012 \\q + 16208 &= 35692 - 7012 \\q + 16208 - 16208 &= 35692 - 7012 - 16208 \\q &= 35692 - 7012 - 16208 \\q &= \{\text{calculate...}\} = 12472\end{aligned}$$

Exercise 1c

$$64\frac{9}{10}kg : 40g =$$

Solution 1c:

$$\begin{aligned}64\frac{9}{10}kg : 40g &= \\64.9kg : 40g &= \\64.9 \cdot 1kg : 40g &= \\64.9 \cdot 1000g : 40g &= \\64900g : 40g &= \\64900 : 40 \cdot \frac{\cancel{g}}{\cancel{g}} &= \\\frac{64900}{40} &= \\\frac{6490}{4} &= \\\frac{3245}{2} &= \\1622.5 &= \end{aligned}$$

Exercise 2

Convert 23.7 minutes into seconds

Solution 2:

$$\begin{aligned}23.7min &= \\23.7 \cdot 1min &= \\23.7 \cdot 60s &= \\23.7 \cdot 60 \cdot s &= \\237 \cdot 6 \cdot s &= \\ \{\text{calculate...}\} &= \\1422s & \end{aligned}$$

Exercise 4

PlotlyBackend()

For saving to png with the Plotly backend PlotlyBase and PlotlyKaleido need to be installed.

$$7 \cdot ((48.3 - x) \cdot 2) = 161$$

Change x by moving the slider

 30.3

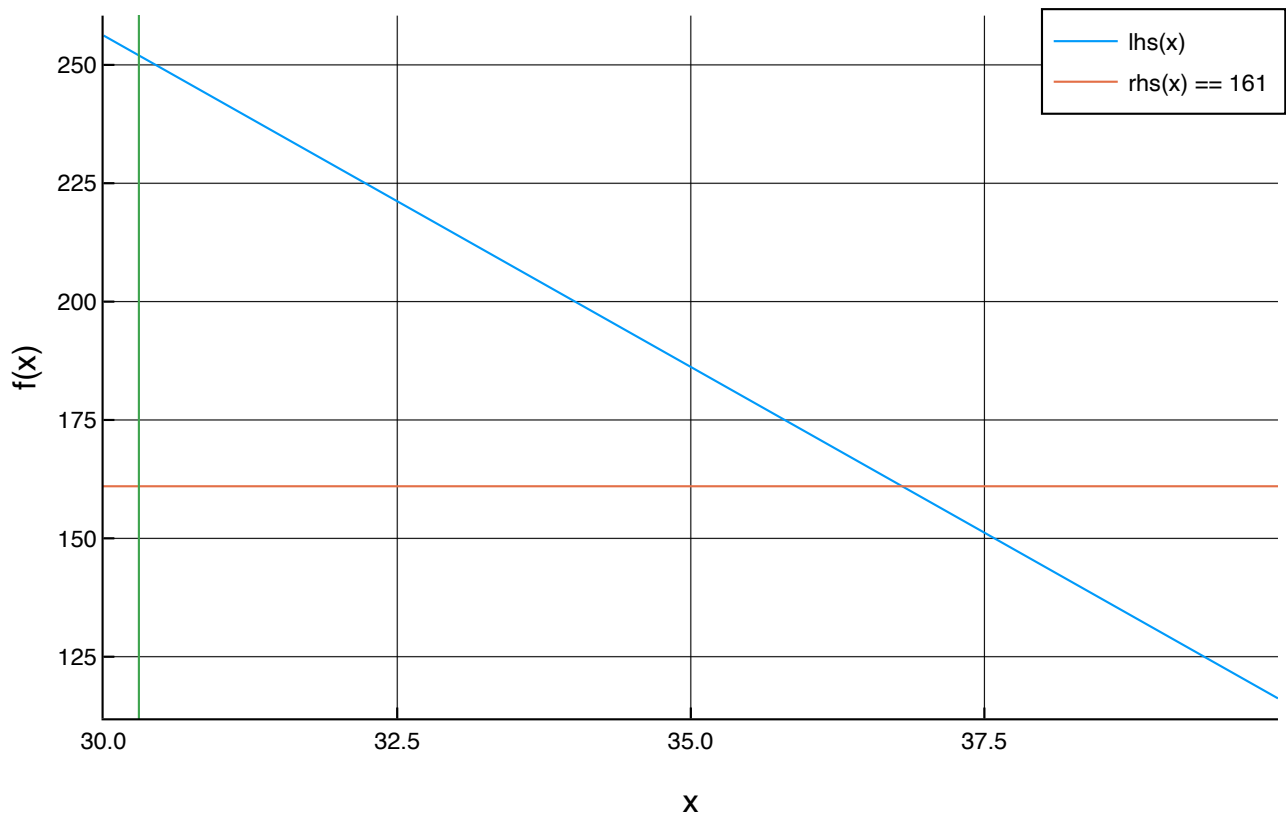
x is now: 30.3



lhs_function (generic function with 1 method)

The left hand side is: 251.99999999999994
The right hand side is: 161





`my_latex_string =`

x_0

LaTeXString

Exercise 7

	weekday	max_temp	min_temp
1	"Monday"	25	12
2	"Tuesday"	25	13
3	"Wednesday"	19	12
4	"Thursday"	22	12
5	"Friday"	27	13
6	"Saturday"	25	14
7	"Sunday"	23	13

	weekday	max_temp	min_temp	temp_diff
1	"Monday"	25	12	13
2	"Tuesday"	25	13	12
3	"Wednesday"	19	12	7
4	"Thursday"	22	12	10
5	"Friday"	27	13	14
6	"Saturday"	25	14	11
7	"Sunday"	23	13	10

	weekday	max_temp	min_temp	temp_diff
1	"Friday"	27	13	14
2	"Monday"	25	12	13
3	"Tuesday"	25	13	12
4	"Saturday"	25	14	11
5	"Thursday"	22	12	10
6	"Sunday"	23	13	10
7	"Wednesday"	19	12	7

```
avg_max_temp = 23.714285714285715
```

```
avg_max_temp = mean(temp_df.max_temp)
```

```
rounded_avg_max_temp = 23.7
```

Exercise 8

```
plants_per_row = 14.0
```

```
total_num_rows = 6.0
```

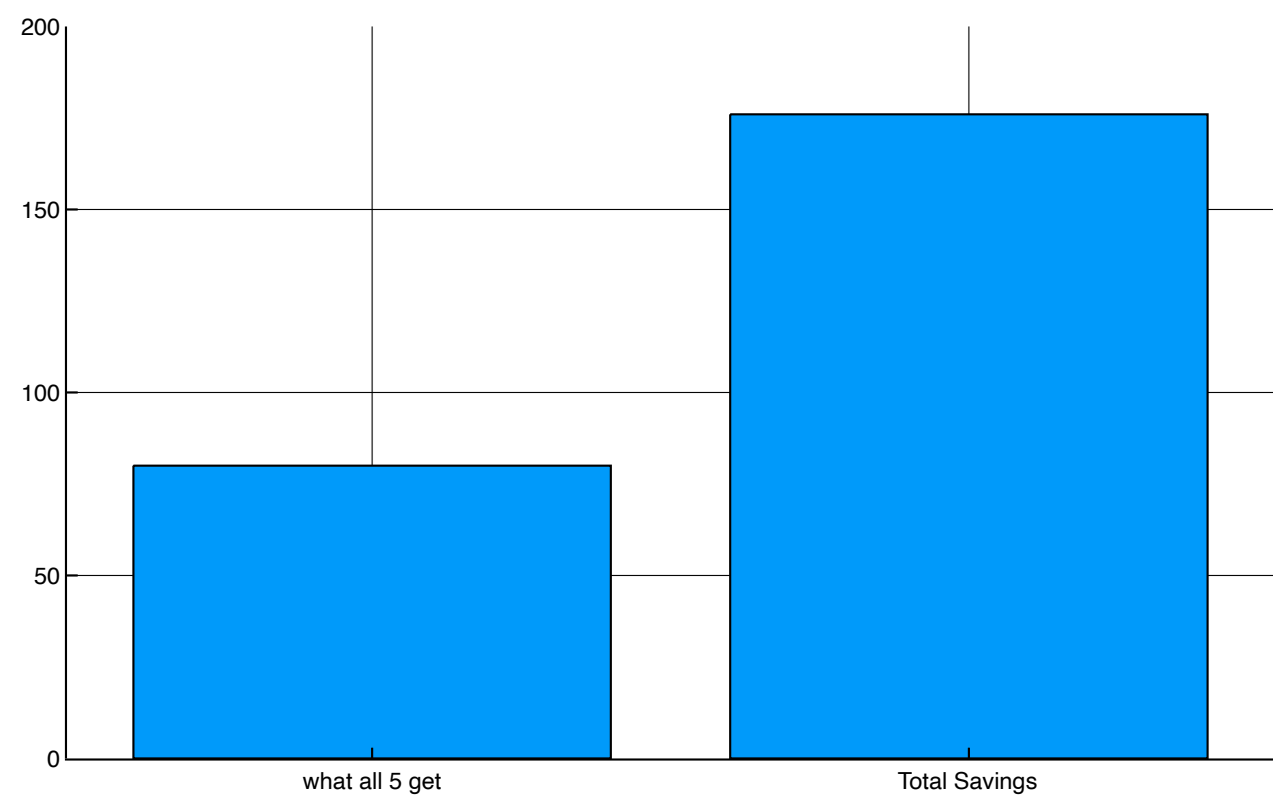
```
strawberry_weight_in_kg = 21.0
```

Exercise 11

Set an assumed amount in CHF for a twin:



80



Exercise 13

```
numbers_to_sort = [1.3, 0.7, 1.125, 0.75, 1.35, 0.8]
```

```
names = ["1.3", "7/10", "9/8", "15/20", "27/20", "0.8"]
```

```
sorted_numbers = [0.7, 0.75, 0.8, 1.125, 1.3, 1.35]
```

```
df_to_sort =
```

	numbers_to_sort	names
1	1.3	"1.3"
2	0.7	"7/10"
3	1.125	"9/8"
4	0.75	"15/20"
5	1.35	"27/20"
6	0.8	"0.8"

```
sorted_df =
```

	numbers_to_sort	names
1	0.7	"7/10"
2	0.75	"15/20"
3	0.8	"0.8"
4	1.125	"9/8"
5	1.3	"1.3"
6	1.35	"27/20"

```
sorted_df = sort(df_to_sort, :numbers_to_sort)
```

Exercise 14

waste_area_in_sq_cm = 144

volume_in_cubic_cm = 576

Exercise 15

$$\text{num legos in tower} \cdot \left(1 - \frac{4}{7}\right) \cdot \left(1 - \frac{3}{5}\right) \cdot \left(1 - \frac{2}{3}\right) = 6$$

$$\text{num legos in tower} \cdot \left(\frac{\cancel{3}}{7}\right) \cdot \left(\frac{2}{5}\right) \cdot \left(\frac{1}{\cancel{3}}\right) = 6$$

$$\text{num legos in tower} \cdot \frac{2}{35} = 6$$

$$\text{num legos in tower} = 6 \cdot \frac{35}{2}$$

$$\text{num legos in tower} = 3 \cdot 35$$

$$\text{num legos in tower} = 105$$