1.1 R\textsuperscript{4} 500 + R\textsuperscript{7} 985,13 = R\textsuperscript{12} 485,13

1.2 Monthly salary: R\textsuperscript{97} 575,00 ÷ 12 = R\textsuperscript{8} 131,25

UIF = 1\% of R\textsuperscript{8} 131,25 = R\textsuperscript{8} 131,25

OR

Yearly UIF: 1\% of R\textsuperscript{97} 575,00 = R\textsuperscript{97} 575,00 ÷ 12 = R\textsuperscript{8} 131,25

1.3 Tax paid per month: R\textsuperscript{12} 485,13 ÷ 12 = R\textsuperscript{1} 040,43

Take home salary: R\textsuperscript{8} 131,25 − (R\textsuperscript{1} 040,43 + R\textsuperscript{8} 131,25) = R\textsuperscript{7} 009,51

Jan 2006 Food: 26,5\% × R\textsuperscript{7} 009,51 = R\textsuperscript{1} 858

Jan 2006 Clothing etc: 5\% × R\textsuperscript{7} 009,51 = R\textsuperscript{3} 50

Jan 2006 Housing etc: 18,9\% × R\textsuperscript{7} 009,51 = R\textsuperscript{1} 325

Jan 2006 Transport: 9,7\% × R\textsuperscript{7} 009,51 = R\textsuperscript{6} 80

Jan 2007 Food: (100 + 9,3)\% × R\textsuperscript{1} 858 = R\textsuperscript{2} 031

Jan 2007 Clothing etc: (100 − 10,9)\% × R\textsuperscript{3} 50 = R\textsuperscript{3} 12

Jan 2007 Housing etc: (100 + 9,2)\% × R\textsuperscript{1} 325 = R\textsuperscript{1} 447

Jan 2007 Transport: (100 + 6,8)\% × R\textsuperscript{6} 80 = R\textsuperscript{7} 26

Total = R\textsuperscript{7} 583

1.4 Total expenditure for January 2007: R\textsuperscript{7} 583

1.5 a Jan 2007 Food: (100 + 9,3)\% × R\textsuperscript{1} 858 = R\textsuperscript{2} 031

b Jan 2007 Clothing etc: (100 − 10,9)\% × R\textsuperscript{3} 50 = R\textsuperscript{3} 12

c Jan 2007 Housing etc: (100 + 9,2)\% × R\textsuperscript{1} 325 = R\textsuperscript{1} 447

d Jan 2007 Transport: (100 + 6,8)\% × R\textsuperscript{6} 80 = R\textsuperscript{7} 26

e Total = R\textsuperscript{7} 583

1.6 Total expenditure for January 2007: = R\textsuperscript{7} 541

% change = \frac{7583 − 7003}{7003} \times 100\% = 7,64\%

1.7 Gross salary after increase: (100 + 5\%) × R\textsuperscript{97} 575,00 = R\textsuperscript{102} 453,75

1.8 2007 tax: 18,000 ÷ 25\% of (R\textsuperscript{102} 453,75 − R\textsuperscript{100} 000) = R\textsuperscript{7} 200

2007 UIF: 1\% of R\textsuperscript{102} 453,75 = R\textsuperscript{1} 024,54 per year

1.9 % increase in take home salary:

\frac{7541 − 7009}{7009} \times 100\% = 7,02\%

% tax in 2006 = \frac{12\,485.13}{97\,575} \times 100\% = 12,8\%

% tax in 2007 = \frac{11\,413.44}{102\,453.75} \times 100\% = 11,1\%

Luca’s tax decreased by 1,7\% from 2006 to 2007. This meant that besides the increase in gross salary of 5\% she was also paying less tax in 2007. This meant that her take home salary was more than 5\%.

1.10 Anticipated expenses = R\textsuperscript{7} 583

Luca will be earning R\textsuperscript{7} 501,31 which falls short by about R50. This means that she will have to look at ways to cut down on her expenses if she does not want to overspend.

2.1 2005: \approx 19\%

2006: \approx 18\%

2007: \approx 16\%

2008: \approx 15\%

2.2 2005: R\textsuperscript{2} 300 000

2006: R\textsuperscript{2} 600 000

2007: R\textsuperscript{3} 300 000

2008: R\textsuperscript{3} 700 000

2.3 Effective interest rate = 10\%

10\% of R\textsuperscript{100} 000 = R\textsuperscript{10} 000

2.4 The effective interest rate has decreased over the period 2005 to 2008. This is seen by the graph of 2006 being below the 2005 graph. Similarly for the 2007 and 2008 graphs. It can also be seen in the answers to 2.1 and 2.2.

3.1 This means that 75\% of the class scored a lower mark than he did and 25\% of the class scored a mark higher than he did.

3.2 Total number of participants = 20

Each quartile has \frac{1}{4} of 20 = 5 participants.

88 falls in the fourth quartile.

3.3.1 75\% percentile

3.3.2 17,2

3.3.3 13,2 < BMI < 19,4

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3.4.1 \[ \text{BMI} = \frac{\text{mass}}{\text{height}^2} = \frac{30}{1.2^2} = 20.8 \] Falls above the 95 percentile and is therefore overweight.

3.4.2 \[ \text{BMI} = \frac{20.6}{1.65^2} = 20.6 \] Falls above the 95 percentile and is therefore overweight.

4.1.1 \[ 5 + 6 + 9 + 10 + 8 + 5 = 43 \] % of fatalities occur between 17h00 and 22h00.

4.1.2 There would be many more cars on the road because people would be traveling to work and school at this time of the day.

4.1.3 Between 17h00 and 22h00, the graph shows a peak between those times.

4.2.1 That data was unavailable.

4.2.2 (a) \[ \frac{9,981}{40,400,000} = 24.71 \text{ per } 100,000. \]

(b) \[ \frac{10,523}{42,640,000} = 24.71 \text{ per } 100,000. \]

4.3.1 \[ 10,523 - 9,981 = 542 \]

4.3.2 \[ 12,727 - 11,201 = 1,526 \]

4.4.1 \[ 24,68 - 24,71 = -3.03 \]

4.4.2 \[ 27,32 - 25,31 = 2.01 \]

4.5 The Minister would use the graph of fatalities per 100 000 as it shows a steady decline in fatalities per 100 000 from 1990 to 1998. Therefore there has been a slow rate of increase in fatalities per 100 000. It shows that even though the number of actual deaths has increased, the ratio of deaths to population size has decreased. Somebody trying to contradict the minister would use the actual fatalities graph as it shows a steady increase in fatalities since 1993. It does not however indicate how the population has increased.

4.6 Fatalities per 100 000. This statistic gives you a ratio of deaths per 100 000 of the population and therefore gives you an idea of the likelihood of you dying in a car crash no matter how large or small the population is. If you are only given the actual fatalities you are unable to compare it with the population size. A large number of fatalities could be a small percentage of a very large population or it could be a big percentage of a small population. It does not give you an idea of the risk factor.

5.1 From Friday 18:10 to Saturday 06:40 by train which is 17\(\frac{1}{2}\) hours.

It takes 1 hour by taxi.

\(\therefore\) trip takes approximately 18\(\frac{1}{2}\) hours.

5.2 R220

5.3 Moz Airlines: Cost R1 485 and time 1 hour

SAA: Cost R1 450 and time 1 hour and 5 minutes

Bus: Cost R220 and time 10\(\frac{1}{2}\) hours

Train and taxi: Cost R80 and time 18\(\frac{1}{2}\) hours.

The least expensive option takes the most time to get there and you travel through the night. It also means a change of transport along the way which is inconvenient.

The two most expensive options (flying) take the least time to get there and is the most convenient as Luka would get a good night’s sleep at home.

5.4 See completed diagram below

5.5 Take Mozambique airlines departing at 19:10 on Friday night and arriving at 20:10.

Spend Friday and Saturday night in Mozambique. (2 nights)

Return by bus on Sunday departing at 19h00 and arriving at 03h55.

This would maximise her time in Maputo and still have her at work on time on Monday morning.

Costs = R1 485 + R220 = R1 705 which is within her budget.