

STATISTICS

2026 WORKSHEET

June 2025

QUESTION 1

An insurance broker signed contracts with 15 people. The monthly premium (in rands) payable on each contract is given below.

134	215	325	326	362	429	515	531	598	610	624	728	923	1 034	1 200
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- 1.1 Calculate the mean of the data. (2)
- 1.2 Write down the standard deviation of the data. (1)
- 1.3 Calculate how many monthly premiums are within ONE standard deviation of the mean. (2)
- 1.4 The insurance company decided to increase the monthly premiums.
 - Monthly premiums that were less than R500 increased by 18%
 - Monthly premiums that were equal to or more than R500 increased by $k\%$

After these increases were applied to the above data, the new mean monthly premium was R686,44. Calculate the value of k . (4)
[9]

QUESTION 2

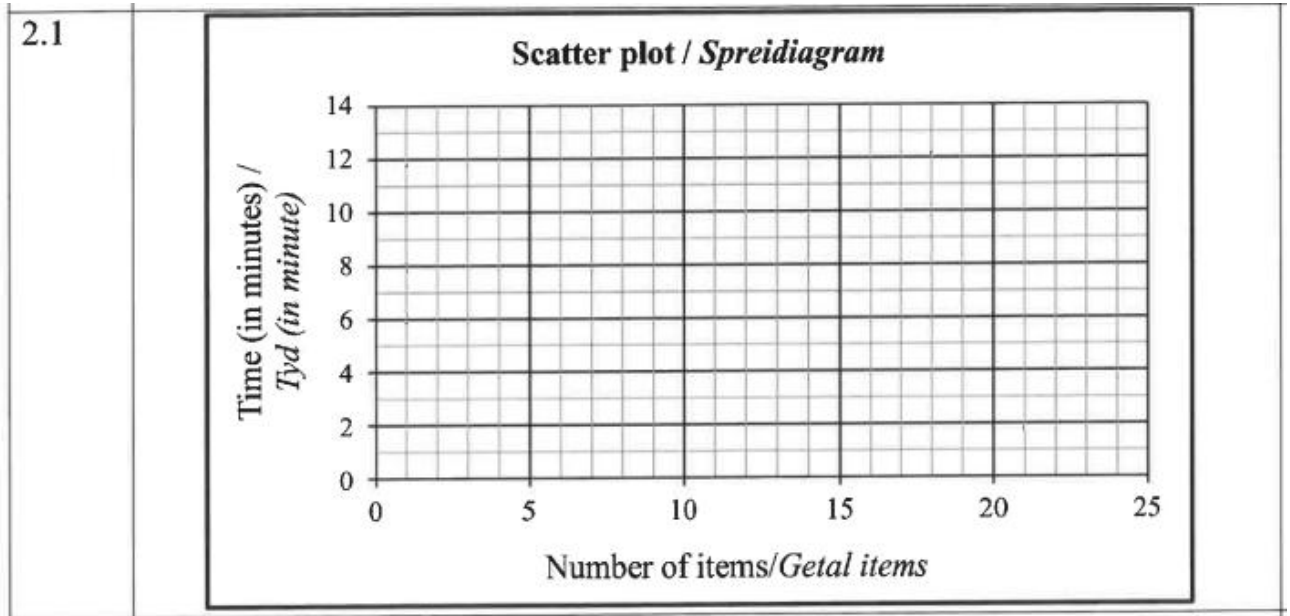
The manager of a supermarket decided to do a survey on the number of items that a customer ordered online and the time (in minutes) that a packer took to have the order ready for delivery. The supermarket received 10 online orders on a certain day. The information for these 10 orders is shown in the table below.

Number of items (x)	10	3	20	14	17	9	12	18	15	19
Time (in minutes) (y)	5	5	9	7	6	6	8	11	10	12

- 2.1 Draw a scatter plot on the grid provided in the ANSWER BOOK. (3)
- 2.2 Determine the equation of the least squares regression line. (3)
- 2.3 Write down the correlation coefficient of the data. (1)
- 2.4 The supermarket received an online order for 13 items. Predict how long (in minutes) it will take a packer to pack the order and have it ready for delivery. (2)
- 2.5 Explain why the y -intercept of the least squares regression line in QUESTION 2.2 does NOT make sense in this context. (1)

[10]

QUESTION 2.1 GRID

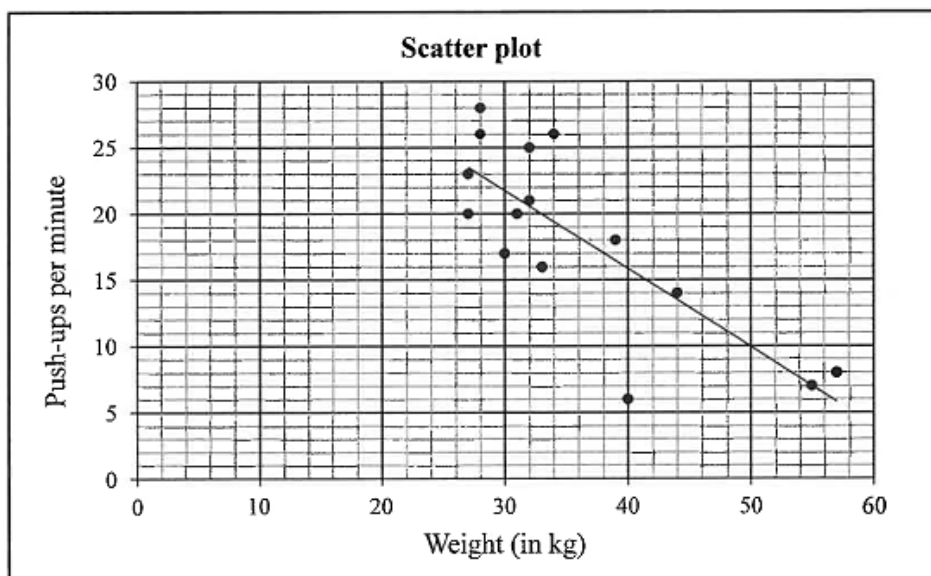


November 2024

QUESTION 1

At the beginning of a season, the coach of a junior boys' rugby team recorded the weight (in kg) of the 15 players in his team and the number of push-ups that each player was able to do in one minute. The data is represented in the table and scatter plot below. The least squares regression line for the data is drawn. ..

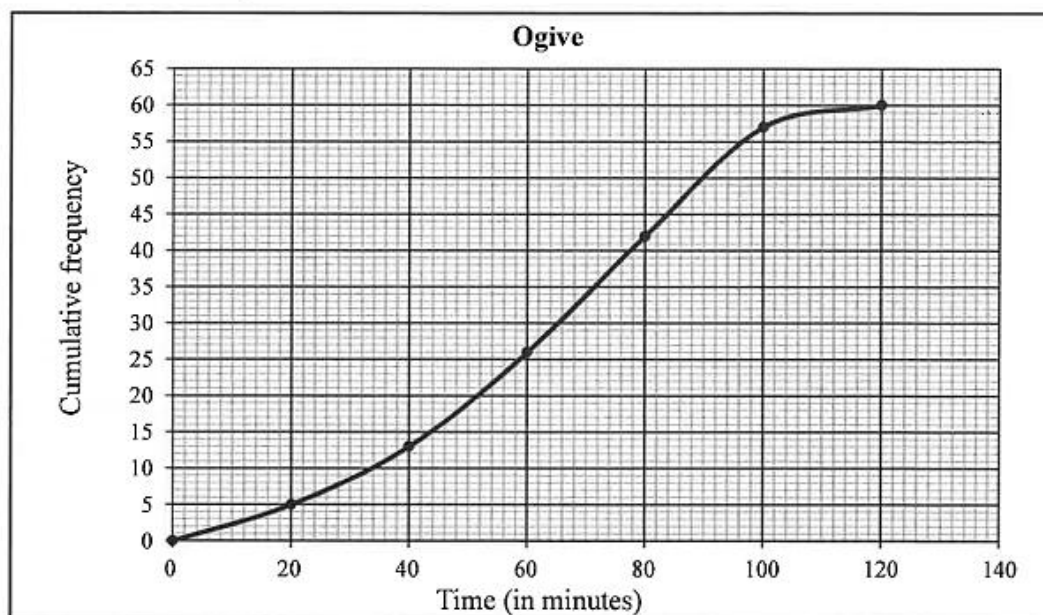
Weight (in kg) (x)	34	32	40	27	33	28	27	55	39	44	30	57	28	32	31
Number of push-ups per minute (y)	26	21	6	20	16	26	23	7	18	14	17	8	28	25	20



- 1.1 Determine the equation of the least squares regression line for the data. (3)
 - 1.2 Write down the correlation coefficient. (1)
 - 1.3 The coach uses the least squares regression line to set the target for the minimum number of push-ups by each team member according to their weight. Predict the number of push-ups that a member of the team, who weighs 29 kg, should do to meet the target. (2)
 - 1.4 Write down the mean number of push-ups for the given data. (1)
 - 1.5 The players trained hard during the season. At the end of the season, the coach reported that each player was able to do 5 more push-ups per minute than they did at the beginning of the season. How does the increase in the number of push-ups influence the standard deviation of the data? (1)
 - 1.6 At the beginning of the season, the coach used the least squares regression line as the minimum target for a player to aim for. Determine the maximum possible increase in the number of push-ups that a team member must obtain to reach the minimum target. (2)
- [10]**

QUESTION 2

The cumulative frequency graph (ogive) shows the time taken (in minutes) for 60 employees to travel to work each morning.



- 2.1 Estimate the median travel time. (1)
- 2.2 Estimate the lower quartile. (1)
- 2.3 Estimate the interquartile range. (2)
- 2.4 The minimum and maximum times taken for an employee to travel to work are 5 and 120 minutes respectively. On the scaled line in the ANSWER BOOK, draw a box and whisker diagram to indicate the distribution of the data as represented in the ogive above. (2)
- 2.5 The company manager decided that all employees who travel for an hour or more will be allowed to work from home for part of the day. What percentage of the employees will be allowed to work from home for part of the day? (2)
- 2.6 Employees work 8 hours in a normal working day. The manager decided on the following rule for time to work from home:
 - An employee is allowed to work half an hour from home for each time interval of 20 minutes, or part thereof, above an hour taken to travel to work.

On a certain day, an employee takes 110 minutes to travel to work. Calculate the number of minutes that this employee will be allowed to work from home on this day.

(2)
[10]

WORKSHEET SOLUTIONS

June 2025

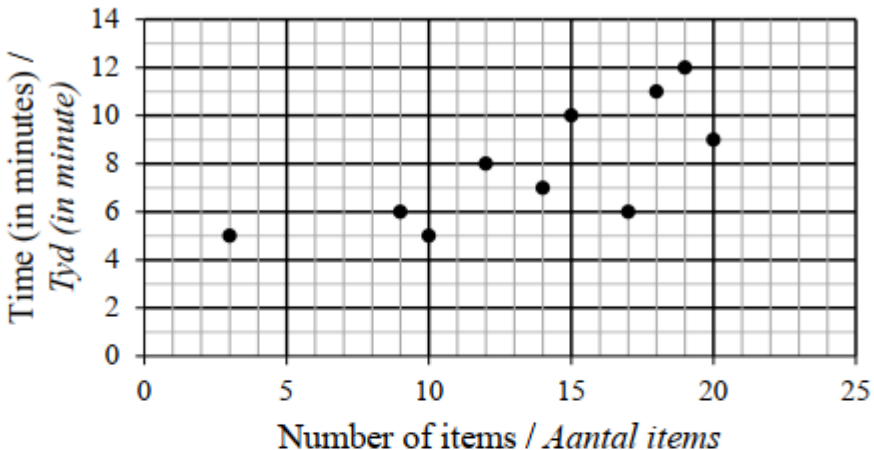
QUESTION/VRAAG 1

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1.1	$\bar{x} = \frac{8554}{15}$ $= 570,27$
1.2	$\sigma = 291,03$
1.3	(279,24 ; 861,3) $\therefore$ 10 premiums
1.4	$\frac{\left(1791 \times \frac{118}{100}\right) + \left(6763 \times \frac{k+100}{100}\right)}{15} = 686,44$ $6763 \times \frac{k+100}{100} = 8183,22$ $\frac{k+100}{100} = 1,209...$ $k+100 = 120,999...$ $k = 21\%$

QUESTION/VRAAG 2

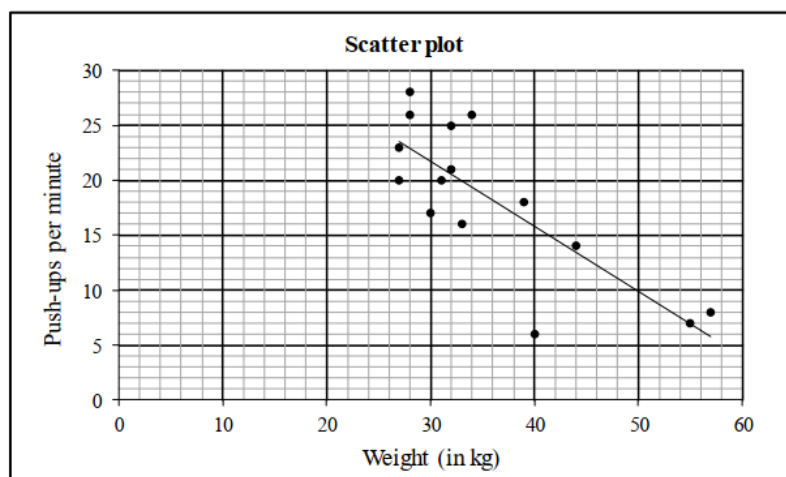
Number of items/Aantal items (x)	10	3	20	14	17	9	12	18	15	19
Time (in minutes)/Tyd (in minute) (y)	5	5	9	7	6	6	8	11	10	12

2.1	Scatter plot / Spreidiagram 
2.2	$a = 3,079...$ $b = 0,351...$ $\hat{y} = 3,08 + 0,35x$
2.3	$r = 0,74$
2.4	$y = 3,08 + 0,35(13)$ $y = 7,63$ OR $y = 7,65$ (calculator)
2.5	It does not make sense to pack 0 items in 3,08 minutes. <i>Dit maak nie sin dat 0 items in 3,08 minute gepak kan word nie.</i>

November 2024

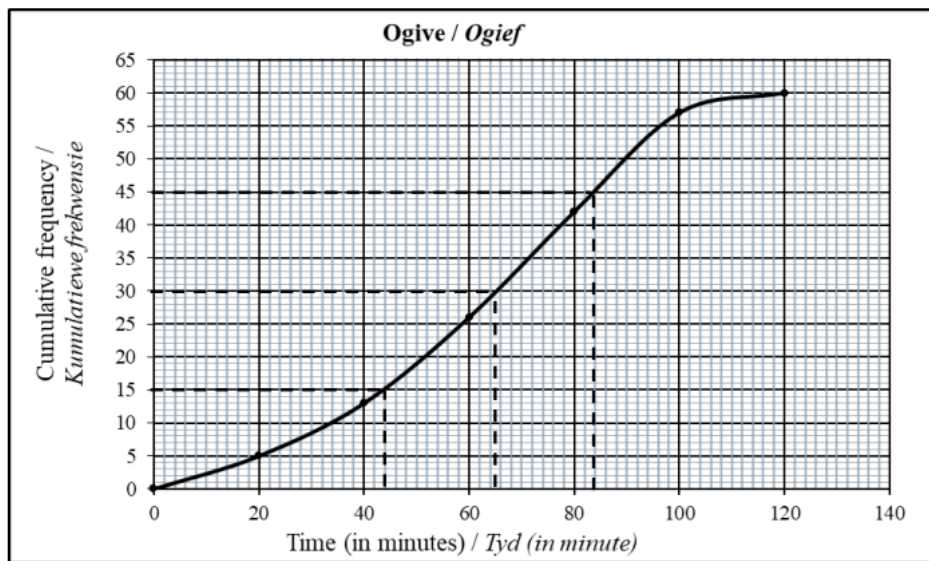
QUESTION/VRAAG 1

Weight (in kg) (x)	34	32	40	27	33	28	27	55	39	44	30	57	28	32	31
Number of push-ups per minute (y)	26	21	6	20	16	26	23	7	18	14	17	8	28	25	20



1.1	$a = 39,456001\dots$ $b = -0,590018\dots$ $\hat{y} = 39,46 - 0,59x$ CORRECT ANSWER ONLY: FULL MARKS
1.2	$r = -0,8$
1.3	$y = 39,46 - 0,59(29)$ $y = 22,35$ OR/OF $y = 22,35$ (calculator)
1.4	$\bar{y} = 18,33$
1.5	The increase in the number of push-ups will have no influence . The standard deviation stays the same .
1.6	6 is furthest y-value below the least squares regression line. An increase of 10 push-ups will get the team member to (40 ; 16), the minimum number of push-ups for a player weighing 40kg.

QUESTION/VRAAG 2



2.1	Median = 65
2.2	$Q_1 = 44$
2.3	$IQR = 84 - 44$ $= 40$
2.4	
2.5	Number of employees who qualify = 34 $\% \text{ of employees who qualify} = \frac{34}{60} \times 100$ $= 56,67\% \text{ of the employees}$ OR/OF Number of employees who qualify = 35 $\% \text{ of employees who qualify} = \frac{35}{60} \times 100$ $= 58,33\% \text{ of the employees}$
2.6	Number of intervals = 3 Time allowed to work from home = 3(30 minutes) = 90 minutes OR/OF 1,5 hours