

Pick Up the Warm Up
Do #1 and #2 only

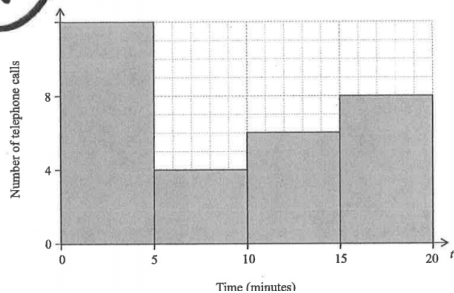
These are questions from past
IB Math Studies exams.

HW QUESTIONS

Should have already checked
your answers from
solutions on the website.

1

the frequency histogram for the distribution of the time, t , in minutes of
calls that Helen made last week.



(a) Complete the frequency table for this distribution.

Time (minutes)	Number of telephone calls
2.5 $0 < t \leq 5$	12
7.5 $5 < t \leq 10$	4
12.5 $10 < t \leq 15$	6
17.5 $15 < t \leq 20$	8

(b) Write down the modal class. $0 < t \leq 5$ [1 mark]

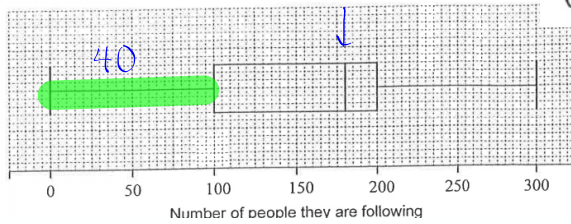
(c) Write down the mid interval value of the $10 < t \leq 15$ class. 12.5 minutes [1 mark]

(d) Use your graphic display calculator to find an estimate for the mean time. [2 marks]

$$\bar{x} = \frac{275}{30} = 9.17 \text{ min}$$

2

In a high school, 160 students completed a questionnaire which asked for the number of people they are following on a social media website. The results were recorded in the following box-and-whisker diagram.



(a) Write down the median.

180 people

Number of people they are following (x)	Number of high school students
25 $0 \leq x \leq 50$	4
75 $50 < x \leq 100$	36
125 $100 < x \leq 150$	34
175 $150 < x \leq 200$	46
225 $200 < x \leq 250$	24
275 $250 < x \leq 300$	16

(b) Complete the table.

(c) (i) Write down the mid-interval value for the $100 < x \leq 150$ group. 125 people

(ii) Using the table, calculate an estimate for the mean number of people being followed on the social media website by these 160 students.

$$\bar{x} = \frac{\sum f \cdot x}{\sum f} = \frac{24900}{160} = 155.625 \text{ or } 156 \text{ people}$$

Agenda

1. Questions on Homework
2. See your LCQ's
3. Protocol for tests
4. An introduction to the IB Math Studies project
(Internal Assessment)

HW Questions

Review Day 1 Assignment - Review Set A

#3

$$\frac{a + (2+5+4+1+2+3+5)}{8} = 3$$



$$\frac{a+22}{8} = 3$$

$$a+22 = 24$$

$$\underline{\underline{a=2}}$$

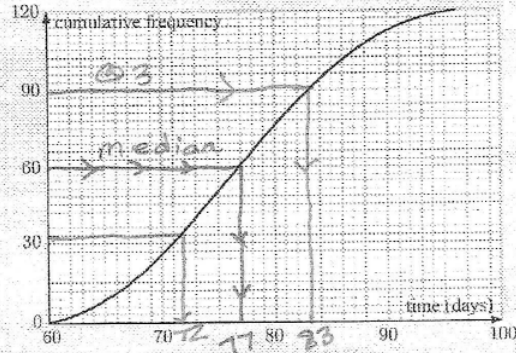
#6

120 people caught whooping cough in an outbreak. The times for them to recover were recorded and the results were used to produce the cumulative frequency graph shown.

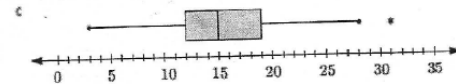
Estimate:

- a the median 77 days
- b the interquartile range.

$$\begin{aligned} \text{IQR} &= 83 - 72 \\ &= 11 \text{ days} \end{aligned}$$



- a min = 3; Q₁ = 12; med = 15; Q₃ = 19; max = 31
- b range = 28; IQR = 7



← Always place your box plot above the appropriately labeled number line

Review Set B

Review Set B

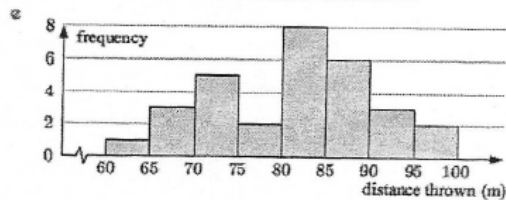
- ① a quantitative continuous b categorical c categorical
 d quantitative continuous e quantitative continuous
 f quantitative discrete g categorical

Set B
2

- a minimum = 64.6 m, maximum = 97.5 m
 b i mean \approx 81.1 m ii median \approx 83.1 m

c, d

Distance (m)	Tally	Frequency
$60 \leq d < 65$		1
$65 \leq d < 70$		3
$70 \leq d < 75$		5
$75 \leq d < 80$		2
$80 \leq d < 85$		8
$85 \leq d < 90$		6
$90 \leq d < 95$		3
$95 \leq d < 100$		2
Total		30



#3

Scores	f	mid-interval Scores	$\Sigma f \cdot x$	$\Sigma f(x_i - \bar{x})^2$
$0 \leq x < 10$	1	5	5	441
$10 \leq x < 20$	13	15		
$20 \leq x < 30$	27	25		
$30 \leq x < 40$	17	35		
$40 \leq x < 50$	2	45	90	
	<u>60</u>		<u>1560</u>	<u>4140</u>

a)

(b)

- Median from graph ≈ 26
- $Q_3 = 32$, $Q_1 = 20$
so IQR = 12
- Mean $\bar{X} = \frac{1560}{60} = 26$
- Std. Deviation $S = \sqrt{\frac{4140}{60}} \approx 8.31$

5 This cumulative frequency curve shows the times taken for 200 students to travel to school by bus.

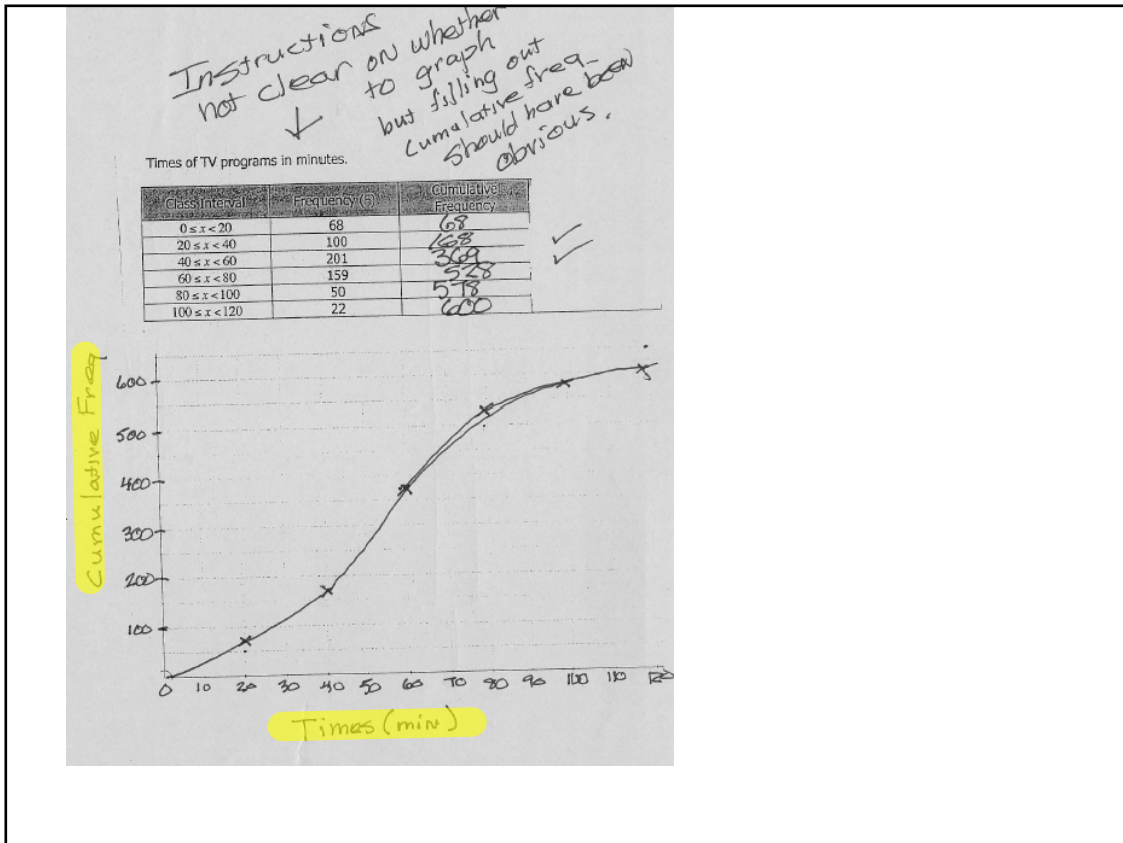
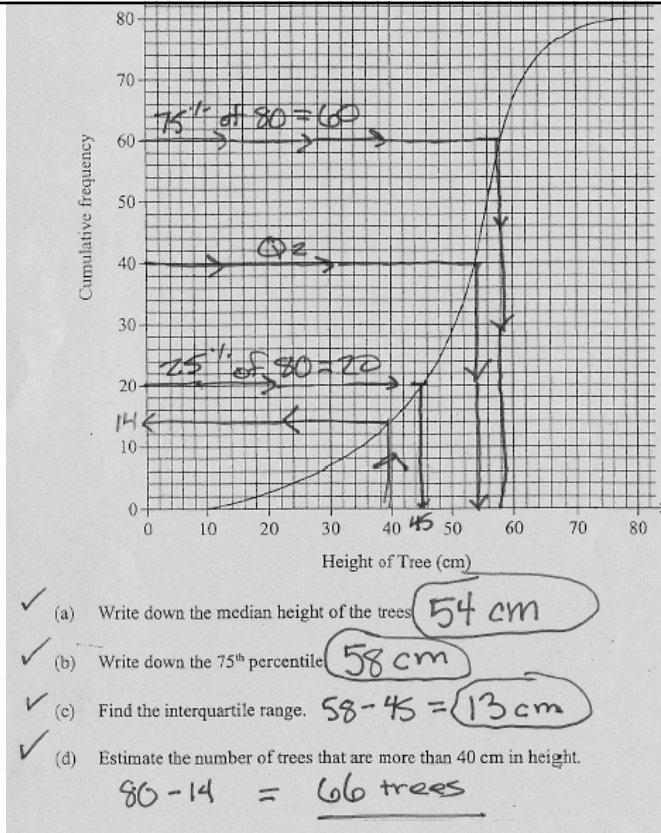
a) Estimate how many of the students spent between 10 and 20 minutes travelling to school.

b) 30% of the students spent more than m minutes travelling to school. Estimate the value of m .

30% of 200 is 60

a) at 10 minutes \rightarrow 20 students
at 20 minutes \rightarrow 112 students
so $112 - 20 = 92$ students

b) 30% of 200 (= 60) students had a higher time than m .
so 70% of 200 (= 140) had less
so around 24 minutes



	/			
	/			
	/			
	/			
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Staple on top of your HW, with the most recent assignment, last. I reserve the right to adjust scores if they are found to be incorrectly marked. Turn in the packet on test day to avoid a 40% penalty.

Totals: ____ / ____

Protocol for Tests

Make sure your batteries are fresh (or charged).

No bathroom trips during the test.

We'll start the test immediately.

Finish by end of the period.

Absolutely no cell phones during the entire class.

There will be an assignment after. Work quietly.

I am available for help after school today and tomorrow morning.

Generally I would like you to finish the test in one single sitting. If you run out of time, I will give you a few extra minutes at lunch. See me today if you have special concerns about this.

IB Math Studies Project

(Internal Assessment)

First 3 Units

Descriptive Stats

Normal Distrib

Stat Applications

examples

Part 1

Part 1 + Part 2

Part 3

An example project
overview

Now do
Warm Up # 3 and 4

3

Each month the number of days of rain in Cardiff is recorded. The following data was collected over a period of 10 months.

7 8 8 8 ~~x 11~~ 13 14 15
11 13 8 11 8 7 8 14 x 15

$\frac{x+11}{2} = 10$ so $x = 9$

For these data the median number of days of rain per month is 10.

(a) Find the value of x .

$x = 9$

(b) Find

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}}$$

(i) the standard deviation;

$s = 2.69$ days

(ii) the interquartile range.

5 days

Answers:

- (a)
- (b) (i)
- (ii)

4

Each year the soccer team, Peterson United, plays 25 games at their home stadium. The owner of Peterson United claimed that last year the mean attendance per game at their home stadium was 24 500.

(a) Based on the owner's claim, calculate the total attendance for the games at Peterson United's home stadium last year.

$\frac{\text{TOTAL}}{25} = 24,500$ Total = 612,500

The actual total attendance last year was 617700.

(b) Calculate the percentage error in the owner's claim.

$$\left| \frac{617,700 - 612,500}{617,700} \right| \times 100$$
 8.42%

(c) Write down your answer to part (b) in the form $a \times 10^k$ where $1 \leq a < 10$, $k \in \mathbb{Z}$.

8.42×10^{-1}

Assignment before Wednesday

Go to the class website....

.... to "IB-Math Project Support"

..... to "Project Handouts"....



Read "P2-Collecting Information"

Browse Project Resources

pdf