

Lesson 5: Statistical Tasks

May 4th, 2023

CHALLENGE QUESTION

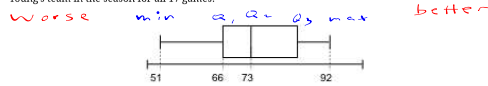
3. Coach Young is analyzing the number of points scored by his basketball team over the 17 game season.

Unfortunately, he misplaced the game sheets for the games played against the Panthers, the Gators, the Sharks and the Bulls.

Below is the number of points scored by his team in 13 of the 17 games.

51	61	62	64	69	71	72	73
75	76	77	81	87	91	92	

The box-and-whisker plot below illustrates the number of points scored per game by Coach Young's team in the season for all 17 games.



- The number of points scored against the Panthers is the lowest score of the season. = 51 points scored against the Panthers.
- The number of points scored against the Gators corresponds to the estimated mean of the table of data grouped in classes shown below.

NUMBER OF POINTS SCORED	FREQUENCY
[50, 60[1
[60, 70[5
[70, 80[6
[80, 90[3
[90, 100]	2

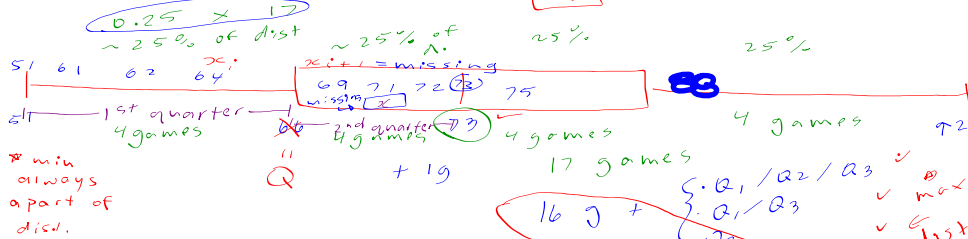
$\bar{x} = 75$

- The number of points scored against the Sharks is located in the second quarter of the box-and-whisker plot.
- None of the 17 games had the same number of points scored.
- The mean number of points scored per game during the season was 74.

How many points did Coach Young's team score against the Bulls?

51	61	62	64	68	69	71	72	73
75	76	77	81	87	91	92		

$x = 67$ or 68 or 70



$Q = \frac{x_i + x_{i+1}}{2}$

$66 = \frac{64 + x}{2}$

$132 = 64 + x$

$x = 68$

WANT: 1 unk.

100%: 1 eq

$10 = \frac{3(2(64 + x))}{2}$

$10 = \frac{3(128 + 2x)}{2}$

$10 = \frac{384 + 6x}{2}$

- The mean number of points scored per game during the season was 74.

How many points did Coach Young's team score against the Bulls?

51	61	62	64	68	69	71	72	73
75	76	77	81	87	91	92		

$\bar{x} = \frac{\text{sum of } x}{17}$

$74 = \frac{(51 + 61 + 62 + 64 + 68 + 69 + 71 + 72 + 73 + 75 + 76 + 77 + 81 + 87 + 91 + 92 + x_B)}{17}$

$74 = \frac{1170 + x_B}{17}$

$17 \times 74 = 1170 + x_B$

$1258 = 1170 + x_B$

$x_B = 88$

verify logic of answer w graph

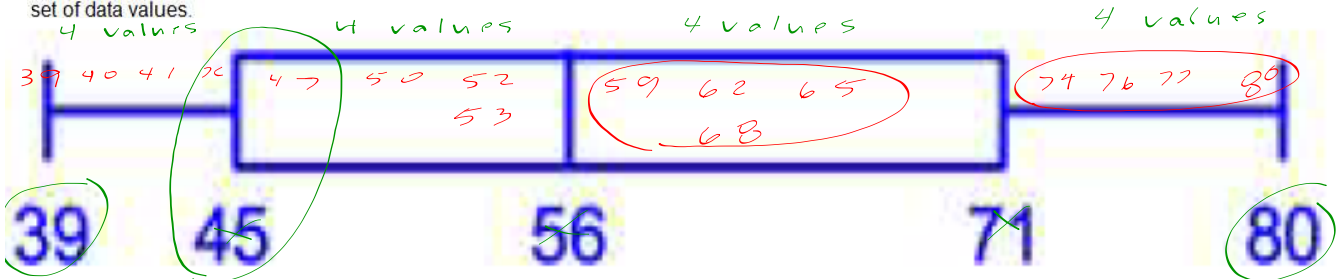
P97 You do P920 and #4 and #6 from 2nd workout

Question 4

In the following data set, one of the sixteen data values is missing.

39, 40, 41, 47, 50, 52, 53, 59, 62, 65, 68, 74, 76, 77, 80

The box-and-whisker plot below represents the complete set of data values.



Determine the **missing data value** from the set.

$$Q = \frac{x_i + x_{i+1}}{2}$$

$$Q = \frac{x_4 + x_5}{2}$$

$$45 = \frac{x + 47}{2}$$

$$90 = x + 47$$

$$x = 43$$

12:30

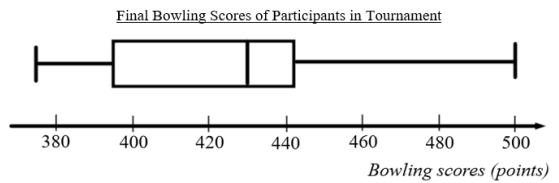
Task 3: Ten-Pin

Walter participated in a bowling tournament with two events: a single-round game and a three-round game. There were 25 participants and the information on their scores is described below.

You can use your notes
 You can work together.
 You can interrupt me, please!
 You can ask the tutor.

Event 1: Single-round game	Event 2: Three-round game																				
<p style="text-align: center;">Points Earned by each Participant</p> <p style="text-align: center;">Bowling scores (points)</p> <p>Walter's score corresponds to the value of the 2nd quartile.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Participant's Score (points)</th> <th>Number of Participants</th> </tr> </thead> <tbody> <tr><td>246</td><td>2</td></tr> <tr><td>265</td><td>1</td></tr> <tr><td>267</td><td>4</td></tr> <tr><td>277</td><td>3</td></tr> <tr><td>285</td><td>4</td></tr> <tr><td>324</td><td>5</td></tr> <tr style="background-color: #e0e0e0;"><td>356</td><td>3</td></tr> <tr><td>375</td><td>2</td></tr> <tr><td>387</td><td>1</td></tr> </tbody> </table> <p>Unfortunately, the scores of three participants are missing (they all scored the same number of points). However, the inter-quartile range of the distribution is 73 and this will be enough information to find the missing scores.</p> <p>Walter's score is 71 points less than the missing score</p>	Participant's Score (points)	Number of Participants	246	2	265	1	267	4	277	3	285	4	324	5	356	3	375	2	387	1
Participant's Score (points)	Number of Participants																				
246	2																				
265	1																				
267	4																				
277	3																				
285	4																				
324	5																				
356	3																				
375	2																				
387	1																				

The final score is calculated by adding the points in each event.



Walter claims he got one of the 6 worst scores. Is Walter correct?

$$W_{25} = x - 71$$

$$W_{25} = 356 - 71$$

$$W_{25} = 285$$

min 246, 246, 265, 267, 267, 267, 267, 277, 277, 277, 285, 285, 285, 285, 285

324, 324, 324, 324, 324, x, x, x, 375, 375, 387

sub into

$$Q_3 = \frac{324 + x}{2} \quad Q_1 = 267$$

$$IR = 73$$

$$IR = Q_3 - Q_1$$

$$73 = \left(\frac{324 + x}{2} \right) - 267$$

$$340 = \frac{324 + x}{2}$$

$$680 = 324 + x$$

$$356 = x$$

$$W_{25} = x - 71$$

$$W_{25} = 356 - 71$$

$$W_{25} = 285$$

$$Q_2 = \frac{n+1}{2}$$

$$= \frac{25+1}{2}$$

$$Q_2 = 13^{th} \text{ position}$$

$$Q_3 / Q_1 = \frac{n+1}{2}$$

$$= \frac{12+1}{2}$$

$$= 6.5$$

avg: $6^{th} + 7^{th}$

sub simplify / evaluate



<p>Evaluation of Competency 1:</p> <p>Uses strategies to solve situational problems</p> <p>1.1 Indication that the situational problem has been understood 1.2 Application of strategies and appropriate mathematical knowledge</p>	<p>Recording Sheet</p>	<p>/ 30</p>
<p>Evaluation of Competency 2:</p> <p>Uses mathematical reasoning</p> <p>2.1 Proper implementation of mathematical reasoning suited to the situation 2.2 Correct use of appropriate mathematical concepts and processes 2.3 Proper organization of the steps in an appropriate procedure</p>		<p>/ 50</p>
<p>Explicit Evaluation of Mathematical Knowledge</p>		<p>/ 20</p>

un finished tasks ;)

