

QUARTILES, PERCENTILES AND BOX PLOTS

Thirty-three students wrote a qualifying exam to enter a college program that accepts a limited number of registrants. The scores on the exam are listed below.

55	68	46	57	64	53	76
61	35	50	73	38	63	48
58	84	62	51	82	52	38
72	40	47	93	46	67	63
44	62	64	65	64		

Diana's mark was 68%,
is that good compared to the class?

Make a Stem and Leaf Plot

tens	ones
3	5, 8, 8
4	0, 4, 6, 6, 7, 8
5	0, 1, 2, 3, 5, 7, 8,
6	1, 2, 2, 3, 3, 4, 4, 4, 5, 7, 8,
7	2, 3, 6
8	2, 4,
9	3

Is her mark in the top or bottom half of the class?

top

Is her mark in the top 5? NO

Is her mark in the top 10? yes

Is top 10 a good mark? yes

Is top 10 always a good mark? depends on how many people in the class.

Quartiles - breaks up the data into

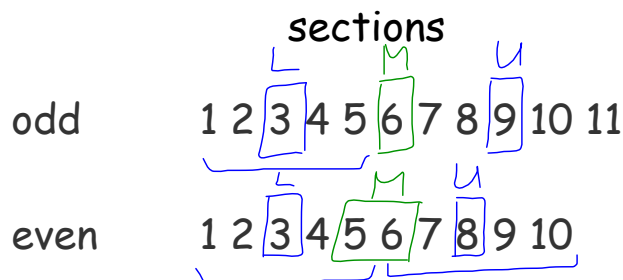
4 sections or quarters

Lower Quartile - bottom quarter or 25%

Median - middle or 50%

Upper Quartile - upper quarter or 75%

Interquartile Range - the difference between the



Using the first example

of students = 33
middle student 17th

Median

61



Upper Quartile



$$\frac{65 + 67}{2} = 66$$

25th, 26th

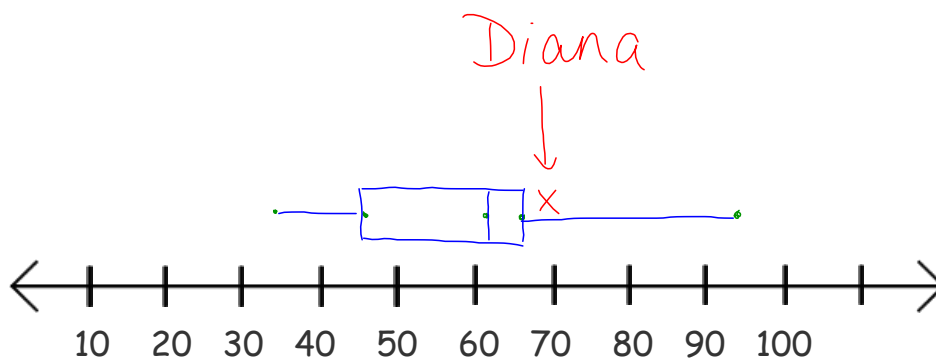
Lower Quartile



$$\frac{47 + 48}{2} = 47.5$$

8th, 9th

Box and Whisker Diagram



median 61
lower quartile 47.5
lowest 35
upper quartile 66
highest 93

Percentile

- used often in growth charts
- class achievements

Diana's mark is 27th from the bottom.
Total number of marks is 33.

$$\text{Percentile} = \frac{27}{33} \times 100 = 82\%$$

∴ She is in the 82nd percentile

Let's do some practice

On the Boards...

Homework

pg 145 # 1, 2, 3, 4, 9