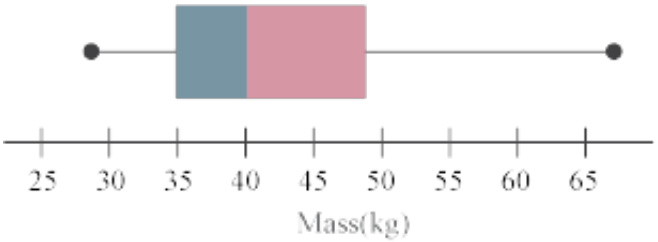
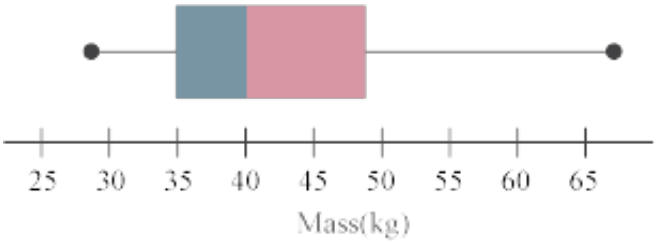
Sixth Grade - Statistics and Probability

1) The diagram below is the box plot for the masses of 24 students in grade 6, Use the box plot to find median and Inter quartile range?



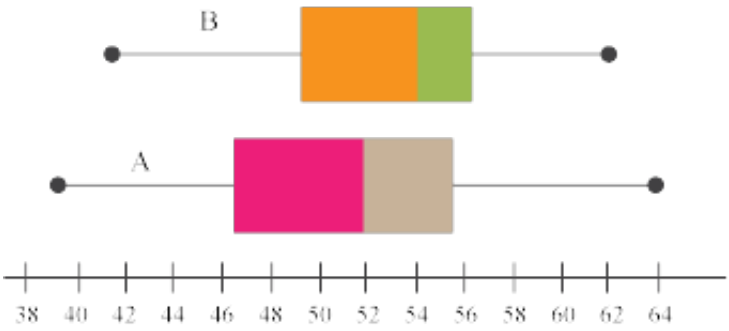
- Median = 50 kg, IQR = 23 kg
- Median = 34 kg, IQR = 21 kg
- Median = 40 kg, IQR = 13 kg
- Median = 9 kg, IQR = 23 kg

2) The diagram below is the box plot for the masses of 24 students in grade 6. Find the percentage of number of students (i) whose weights are less than 35 kg, (ii) whose weights are more than 48 kg?



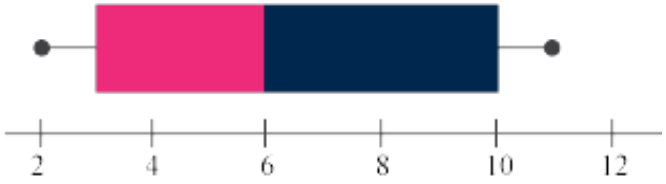
- (i) 45%, (ii) 55%
- (i) 25%, (ii) 25%
- (i) 65%, (ii) 65%
- (i) 35%, (ii) 45%

3) The Box-and-Whisker Plots show the distribution of masses of girls in 2 schools.



- a = 43 kg, b = 6.5 kg, c = Cannot be determined
- a = 42 kg, b = 9.1 kg, c = Yes, the median mass of School B is 54 kg which is less than the median mass of school which is 57 kg
- a = 53 kg, b = 7.5 kg, c = No, the median mass of School A is 53 kg which is less than the median mass of school which is 55 kg
- a = 61 kg, b = 5.4 kg, c = None of these

4) Two months after their birth, the mass of the 80 babies were taken and the results are shown in the box-plot diagram below. (a)the median, (b)range, (c)the value of y given that 60 babies have mass less than or equal to y kg. 60 babies means 75% of the total number of babies?



- a = 7, b = 18, c = 21
- a = 6, b = 11, c = 10
- a = 12, b = 22, c = 30
- a = 9, b = 14, c = 19

5) There are three soccer teams and each played five games. Their scores are below: Instead of using mean scores, you use the median score of each team to make your decision. Which team do you join?

	Game 1	Game 2	Game 3	Game 4	Game 5
Los Angeles Galaxy	87	54	99	78	67
San Jose Earthquakes	101	65	88	55	36
Chicago Fire	45	85	90	80	50

- Chicago Fire

- San Jose
- None of these
- Los Angeles

6) There are three soccer teams and each played five games. Their scores are below: Pretend you are the coach of Chicago Fire and you were being interviewed about your team for the local newspaper. Would it be better for you to report your mean score or your median score?

	Game 1	Game 2	Game 3	Game 4	Game 5
Los Angeles Galaxy	87	54	99	78	67
San Jose Earthquakes	101	65	88	55	36
Chicago Fire	45	85	90	80	50

- Cannot be determined
- Median score
- Mean score
- Both

7) The following table illustrates how many times you and your friends visited Video Game Center during year 2010. (a) By comparing modes, which person went to the center the least per month? (b) By comparing medians, which person went to the center the most per month?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
John	1	4	3	2	5	3	4	2	3	2	3	2
David	4	2	4	4	5	1	3	2	3	2	4	3
Ram	2	3	3	4	3	4	3	5	1	3	5	1
Mohd	4	5	2	3	5	4	5	5	3	2	4	5

- (a)David, (b)John
- (a)Either John or Ram, (b)Mohd
- (a)Mohd, (b)Ram
- (a)Mohd or David, (b)David

8) The following table illustrates how many times you and your friends visited Video Game Center during year 2010. (a) Rank the friends in order of most visited to least visited by comparing their means.

(b) Which month, by comparing the means of number of visits to center in each month, who is the most popular Video Game player?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
John	1	4	3	2	5	3	4	2	3	2	3	2
David	4	2	4	4	5	1	3	2	3	2	4	3
Ram	2	3	3	4	3	4	3	5	1	3	5	1
Mohd	4	5	2	3	5	4	5	5	3	2	4	5

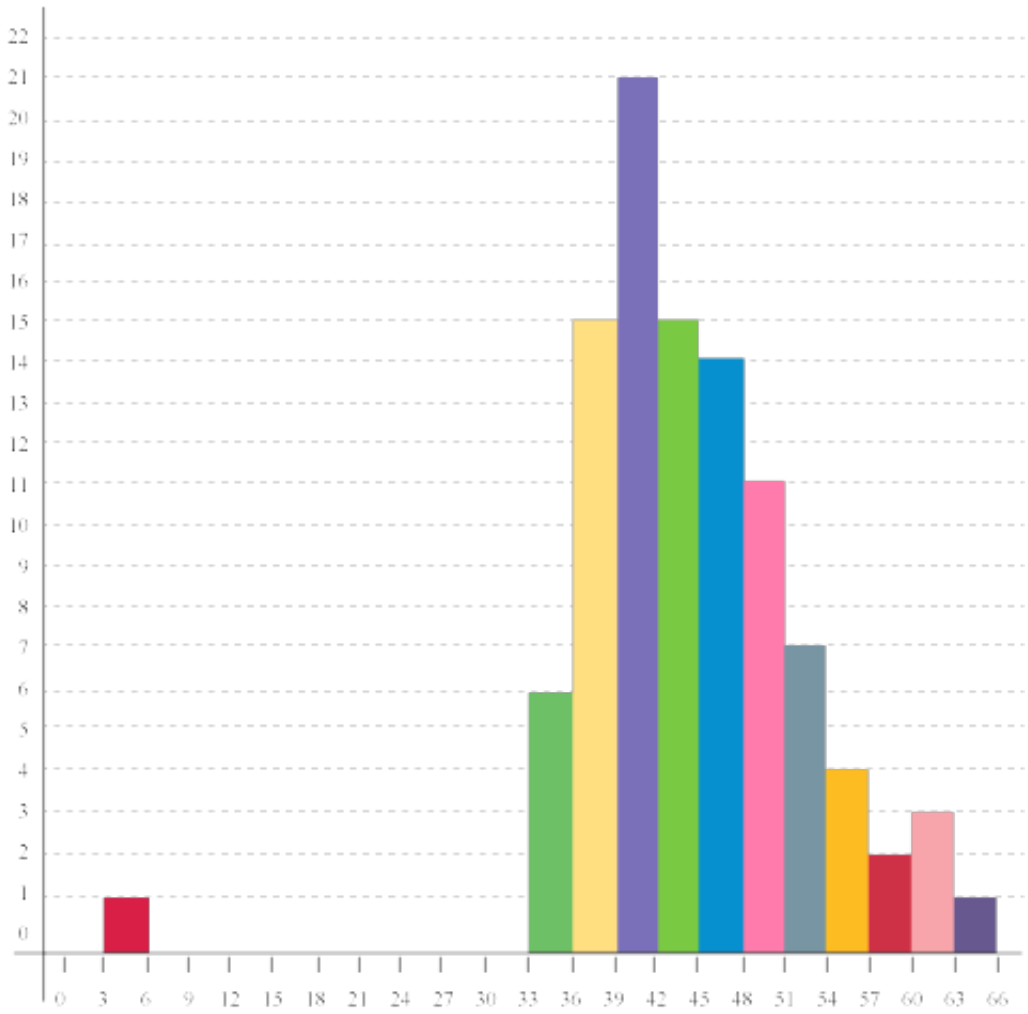
- (a)Mohd, Ram, (John, David), (b)Ram
- (a)(Ram, Mohd),John, David, (b)David
- (a)Mohd, (David, Ram)John, (b)Mohd
- (a)John, (Ram, Mohd), David, (b)John

9) The following table illustrates how many times you and your friends visited Video Game Center during year 2010. (a)By comparing medians, which month is the lowest number of visits by all the four? (b) What is the mean of the medians for each month (the arithmetic average of the medians of the number of visits in each month)?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
John	1	4	3	2	5	3	4	2	3	2	3	2
David	4	2	4	4	5	1	3	2	3	2	4	3
Ram	2	3	3	4	3	4	3	5	1	3	5	1
Mohd	4	5	2	3	5	4	5	5	3	2	4	5

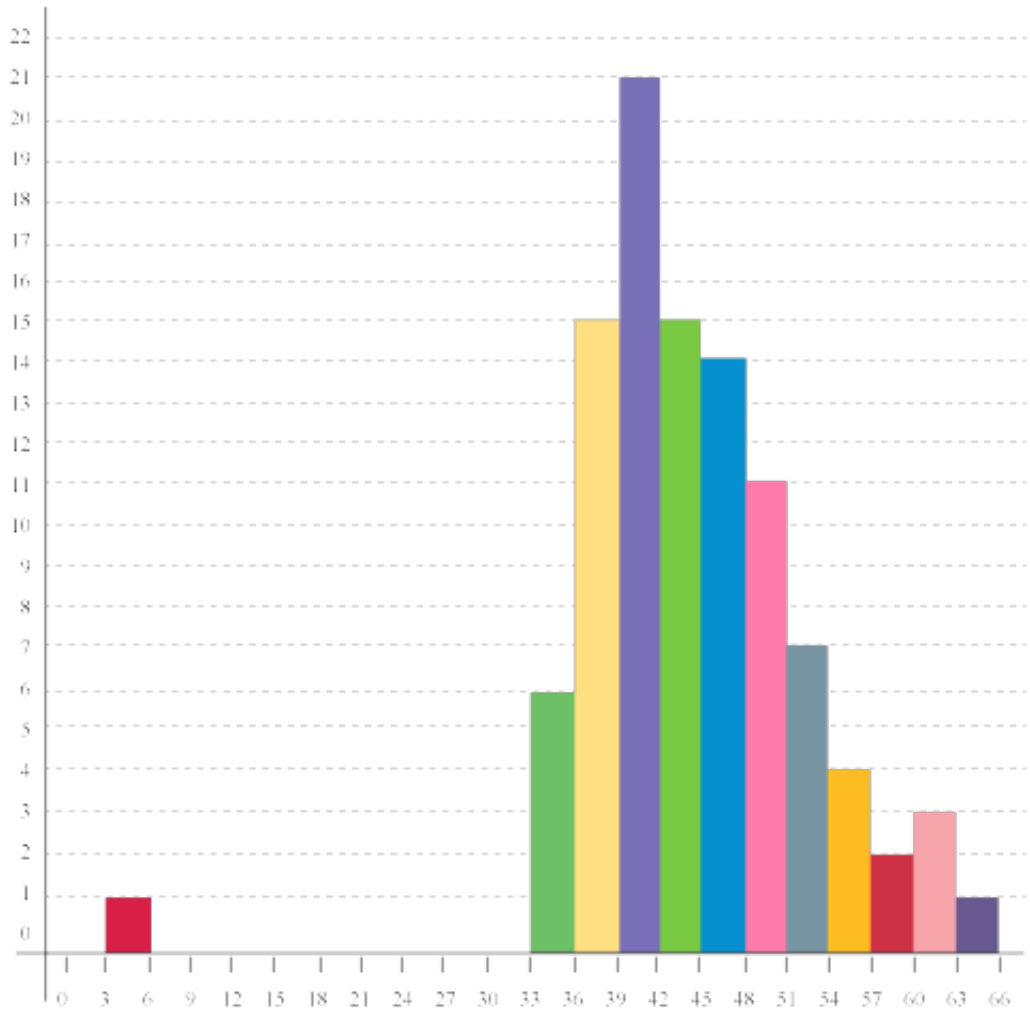
- (a)Sep and Oct, (b)3.33
- (a)Mar and Nov, (b)4.39
- (a)Apr and May, (b)9.44
- (a)Aug and Oct, (b)2.45

10) My friend Rani has a collection of 300 music CDs. She keeps track of them in a spread sheet; one variable she measures and records is the playing time. Horizontal axis is the playing time in minutes and the vertical axis is the percentage of CDs available (approximately). X-axis: each interval – 3 minutes. Y-axis: in percentage (%). In the above Histogram, you can see one outlier. How many outliers are there, is it only one or more?



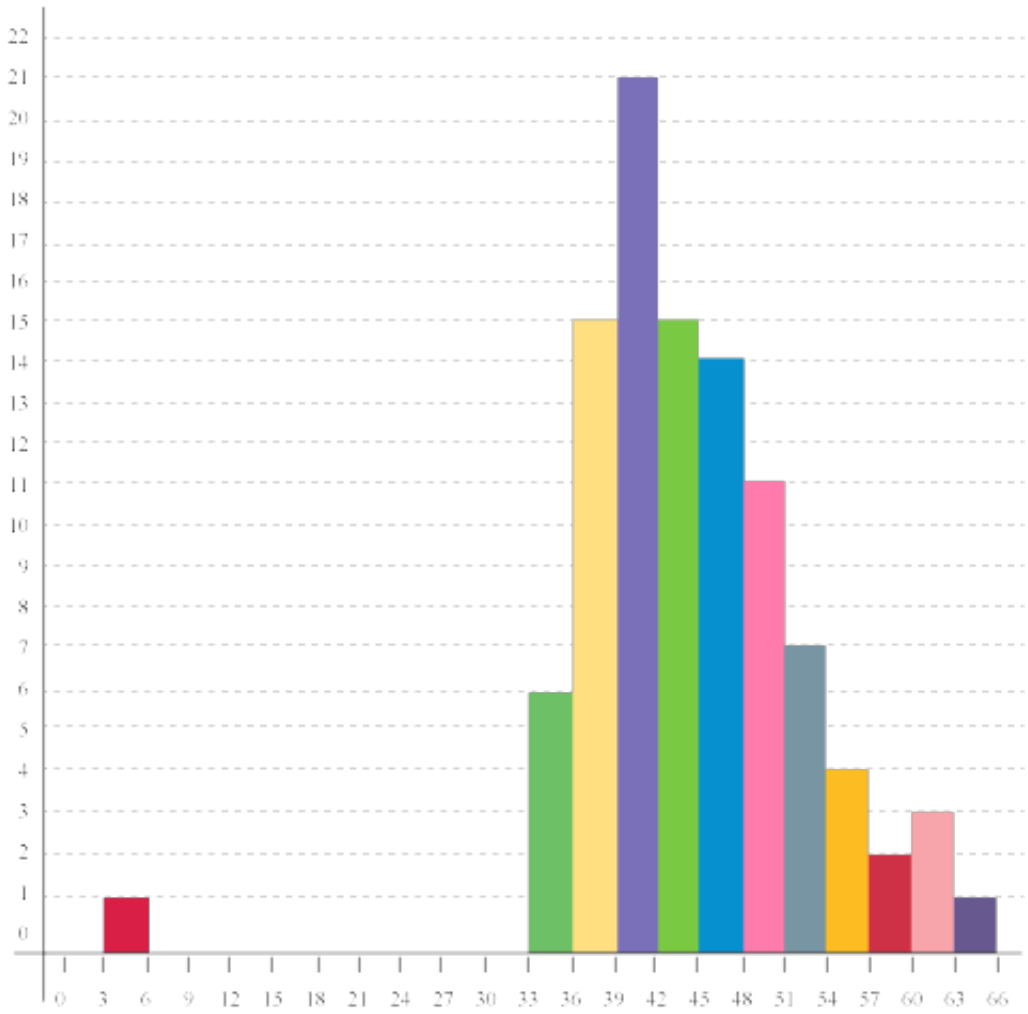
- 3
- 4
- 7
- 9

11) My friend Rani has a collection of 300 music CDs. She keeps track of them in a spread sheet; one variable she measures and records is the playing time. Horizontal axis is the playing time in minutes and the vertical axis is the percentage of CDs available (approximately). X-axis: each interval – 3 minutes. Y-axis: in percentage (%) (a). Characterize the shape of the distribution, is it symmetrical, skewed left or right. (b) Dropping the outliers from the data set, Rani computes the mean playing time to be 45 minutes. Comment on her calculation?



- (a)Symmetrical, skewed left, (b)33.28
- Cannot be determined
- None of these
- (a)Not symmetrical, skewed right, (b)43.18

12) My friend Rani has a collection of 300 music CDs. She keeps track of them in a spread sheet; one variable she measures and records is the playing time. Horizontal axis is the playing time in minutes and the vertical axis is the percentage of CDs available (approximately).X-axis: each interval – 3 minutes. Y-axis: in percentage (%). (a)If Rani wants to include the outlier(s), how would the mean change? (app). (b) Find the lower quartile



- (a)47.78 (b) 29 - 22 minutes
- (a)32.75 (b) 39 - 60 minutes
- (a)32.78 (b) 29 - 82 minutes
- (a)42.78 (b) 39 - 42 minutes

13) If the mean of numbers 28, x, 42, 78 and 104 is 62, then what is the mean of 128, 255, 511,1023 and x?

- 450
- 395
- 245
- 123

14) The arithmetic mean of the 5 consecutive integers starting with’s’ is 'a'. What is the arithmetic

mean of 9 consecutive integers that start with s + 2 in terms of a?

- (a + 4)
- (a + 9)
- (a + 5)
- (a + 7)

15) The average weight of a group of 30 friends increases by 1 kg when the weight of their football coach was added. If average weight of the group after including the weight of the football coach is 31kgs, what is the weight of their football coach in kg?

- 45 kg
- 61 kg
- 34 kg
- 54 kg

16) The average wages of a worker during a fortnight comprising 15 consecutive working days was $ 90 per day. During the first 7 days, his average wages was $ 87/day and the average wages during the last 7 days was $ 92 /day. What was his wage on the 8th day?

- $97
- $56
- $42
- $78

17) The average of 5 quantities is 6. The average of 3 of them is 8. What is the average of the remaining two numbers?

- 3
- 6
- 8
- 12

18) The average age of a group of 10 students was 20. The average age increased by 2 years when two new students joined the group. What is the average age of the two new students who joined the group?

- 35
- 45
- 67
- 32

19) A school teacher determines her student's grade by averaging the following three scores: the midterm, the final exam, and the student's average on four unit tests. Clinton's average on the four unit tests is a 72. He scored a 53 on the midterm. What is the lowest score he can get on the final exam if he needs to pass the class with an average of 65?

- $x > 70$
- $x > 40$
- $x > 60$
- $x > 50$

20) John times his first mile every time he goes running. Today he ran 4 miles, and his first mile was 6 minutes and 54 seconds. If his total time was 27 minutes and 12 seconds, what was his average mile pace on his last 3 miles?

- 6 minutes 48 seconds
- 3 minutes 51 seconds
- 4 minutes 41 seconds
- 2 minutes 59 seconds

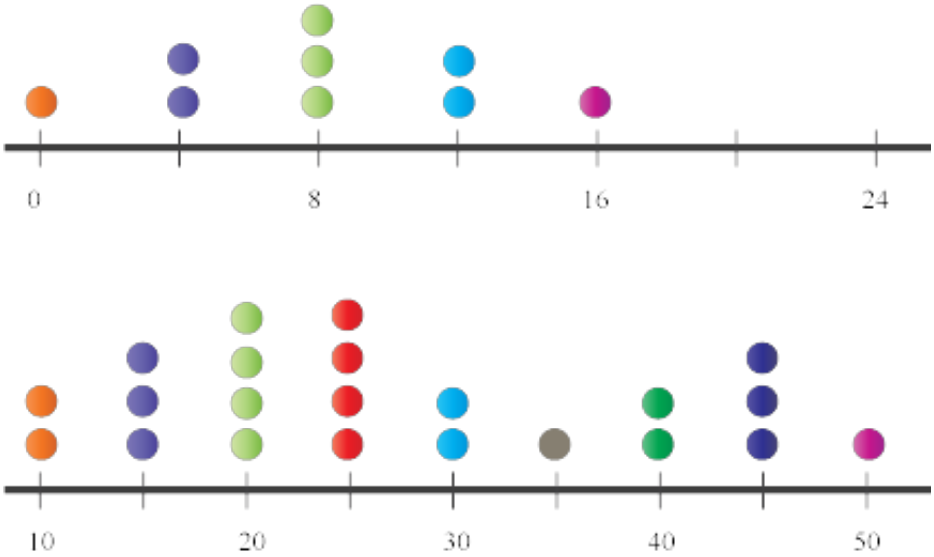
21) Find the mean, median, mode and range of the raw data 32, 23, 22, 33, 33, 23, 32, 23, 22?

- Mean = 31, Median = 22, Mode = 22, Range = 15
- Mean = 21, Median = 32, Mode = 32, Range = 12
- Mean = 27, Median = 23, Mode = 23, Range = 11
- Mean = 26, Median = 33, Mode = 33, Range = 19

22) The students of a class were asked how many brothers and sisters (siblings) they each have. The dot plot below shows the results. a)How many of the students have six siblings?, b)How many of the students have no siblings?, c)How many of the students have three or more siblings?

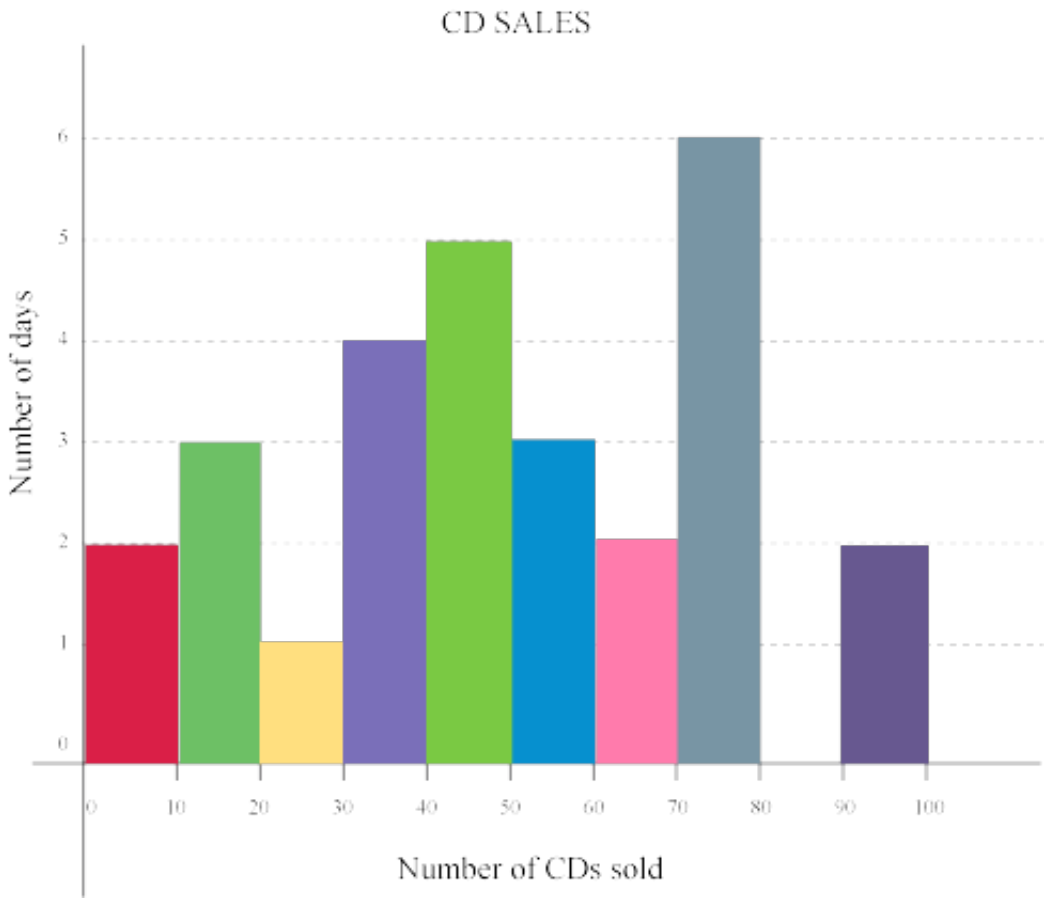
- (a) 6 students,(b) 8 students,(c) no students
- (a) 3 students,(b) no students,(c) 6 students
- (a) No students,(b) 4 students,(c) 9 students
- (a) 4 students,(b) 2 students,(c) 6 students

23) Find the mean, median and mode?



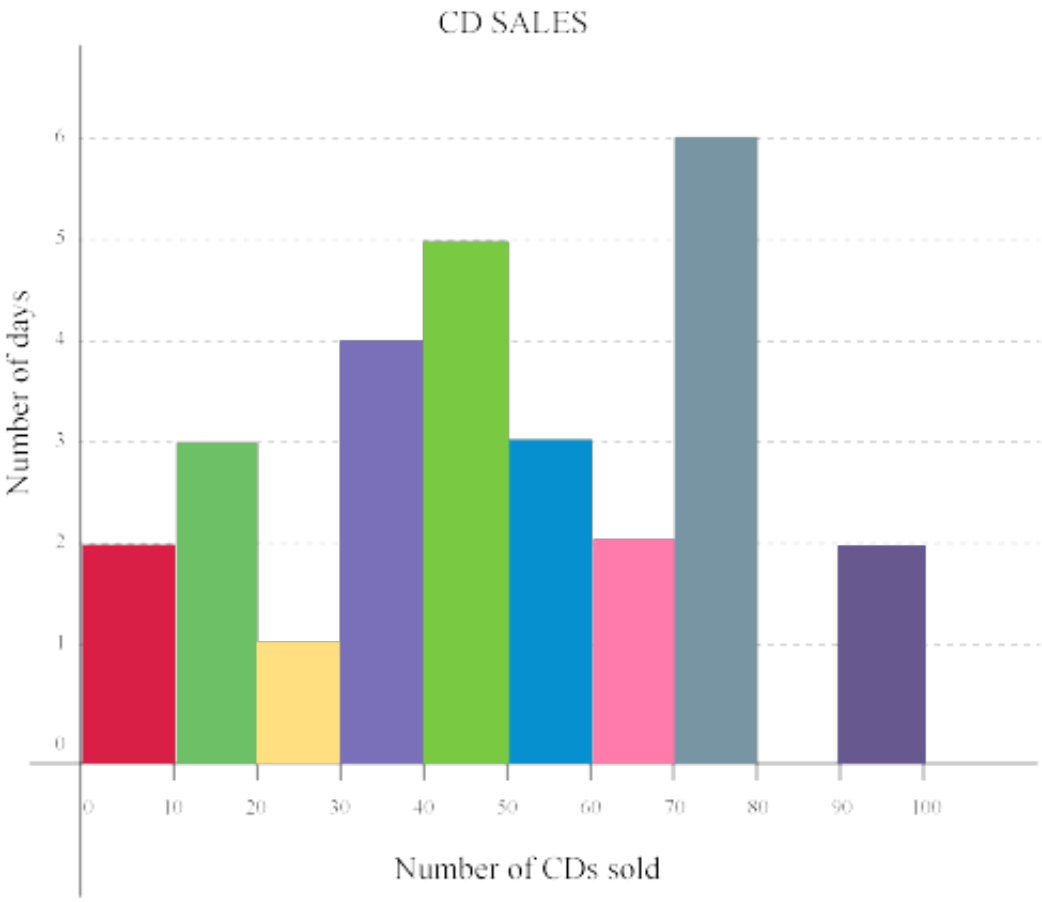
- Mean = 7.6, Median = 8, Mode = 8
- Mean = 9.6, Median = 8, Mode = 13
- Mean = 8.4, Median = 12, Mode = 9
- Mean = 9.1, Median = 13, Mode = 12

24) The owner of a music shop monitored CD sales over a period of days. This histogram shows the results. a)Find the total number of days included in this data set. b)For how many days were fewer than 20 CDs sold?



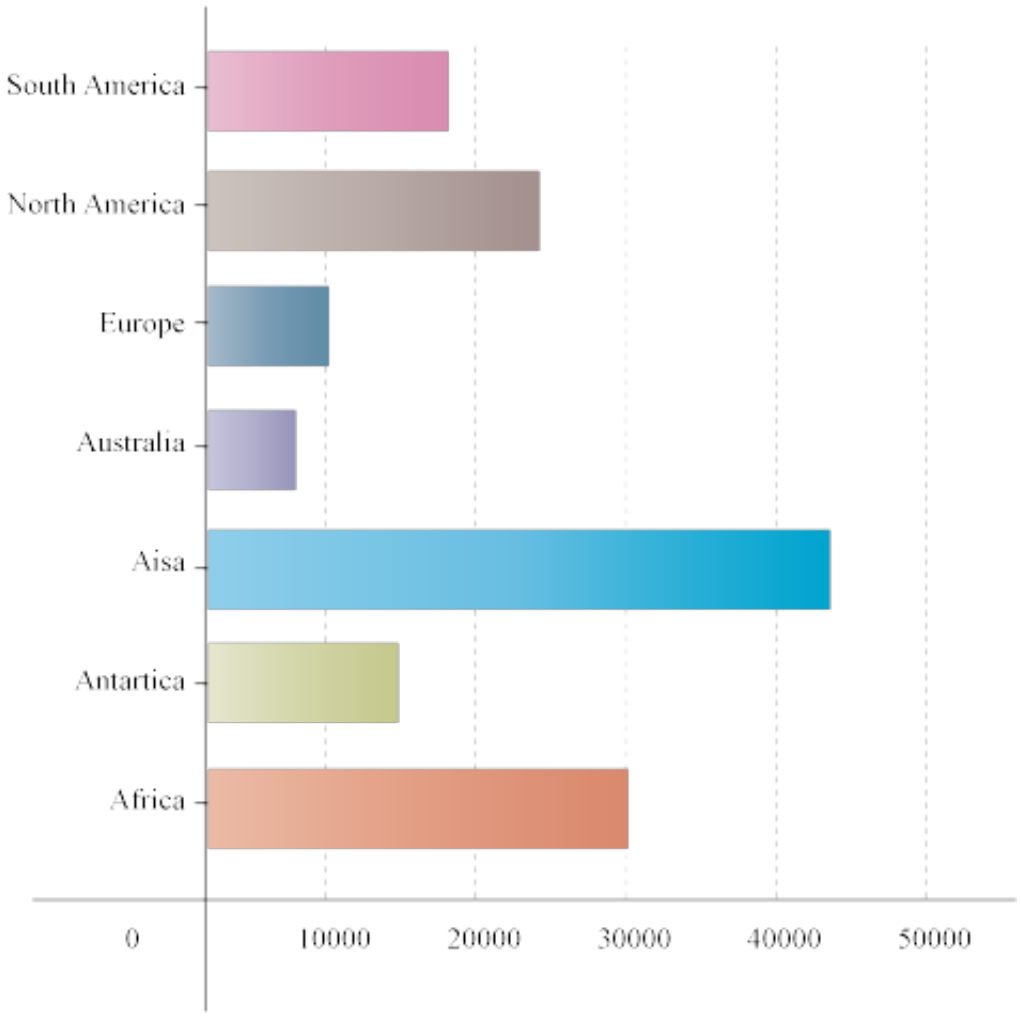
- a = 31, b = 8
- a = 28, b = 5
- a = 31, b = 3
- a = 12, b = 6

25) The owner of a music shop monitored CD sales over a period of days. This histogram shows the results. a)For how many days were at least 50 but fewer than 80 CDs sold? b)Explain the empty 80–90 interval?



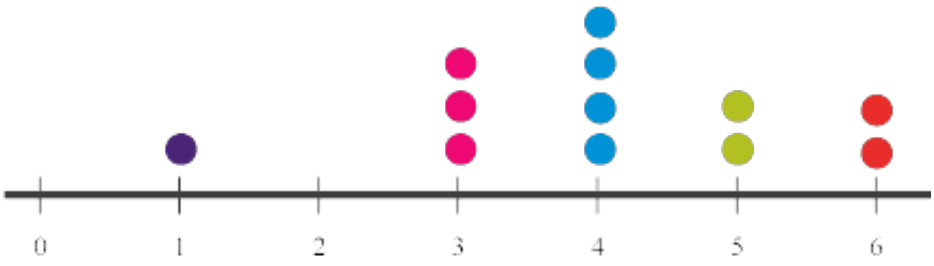
- a = 11, b = empty
- a = 31, b = cd sold
- a = 21, b = no profit
- a = 11, b = no sales

26) This bar graph shows the approximate land area of the seven continents. (All units in 1000 Square kilometers). List out the data (approximate) in raw form, in 1000 sq. kms?



- 10000, 12500, 8000, 19000, 22000, 42000, 30000
- 30000, 12500, 8000, 42000, 19000, 22000, 10000
- 8000, 10000, 19000, 22000, 12500, 42000, 30000
- 19000, 22000, 10000, 8000, 42000, 12500, 30000

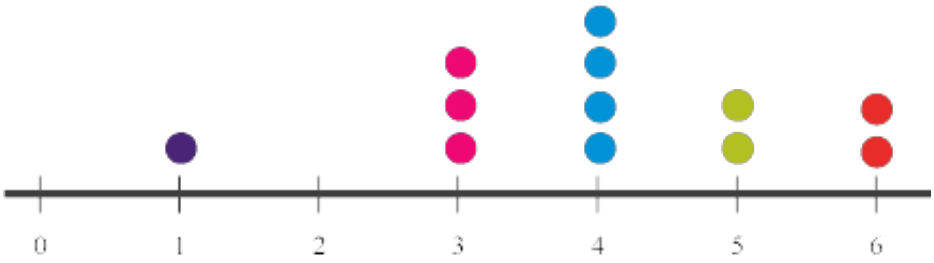
27) The following dot diagram shows the quiz scores of some students. a)Find the total number of students who took the quiz. b)Find the mode?



- a = 12, b = 4
- a = 15, b = 2
- a = 14, b = 6

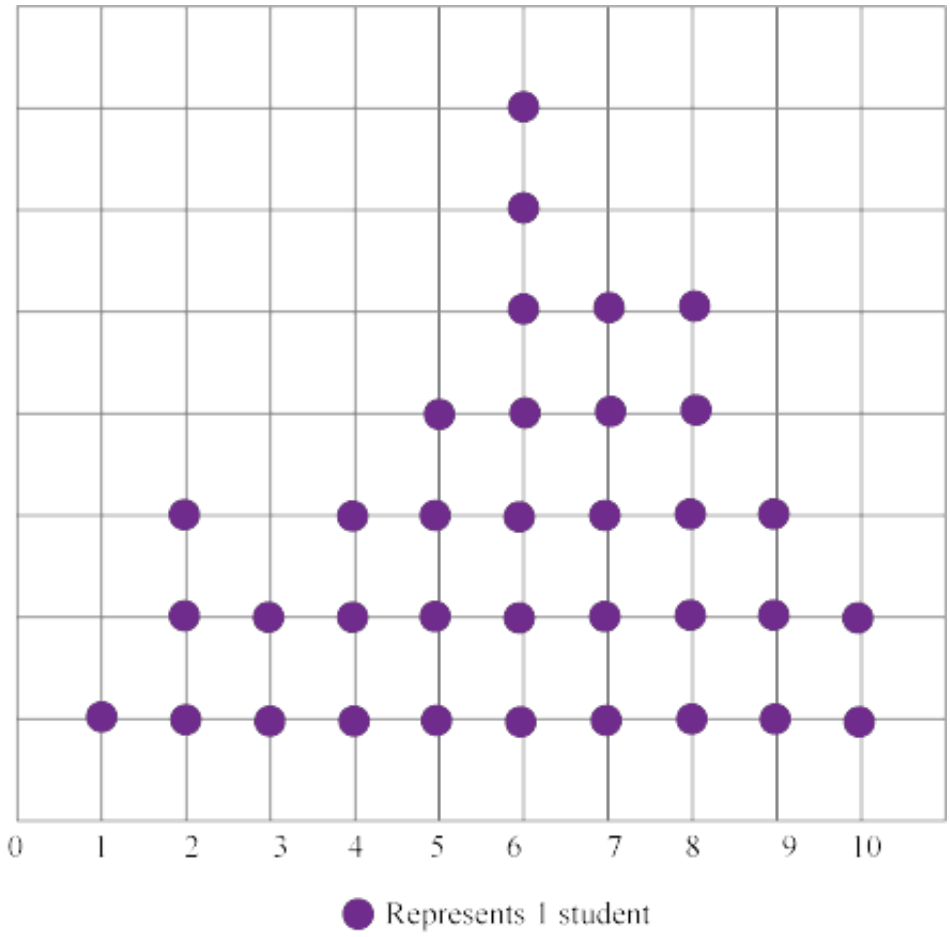
- a = 8, b = 5

28) The following dot diagram shows the quiz scores of some students. a)Find the mean score. b)If the passing mark is 4, find the percentage of students who passed the quiz?



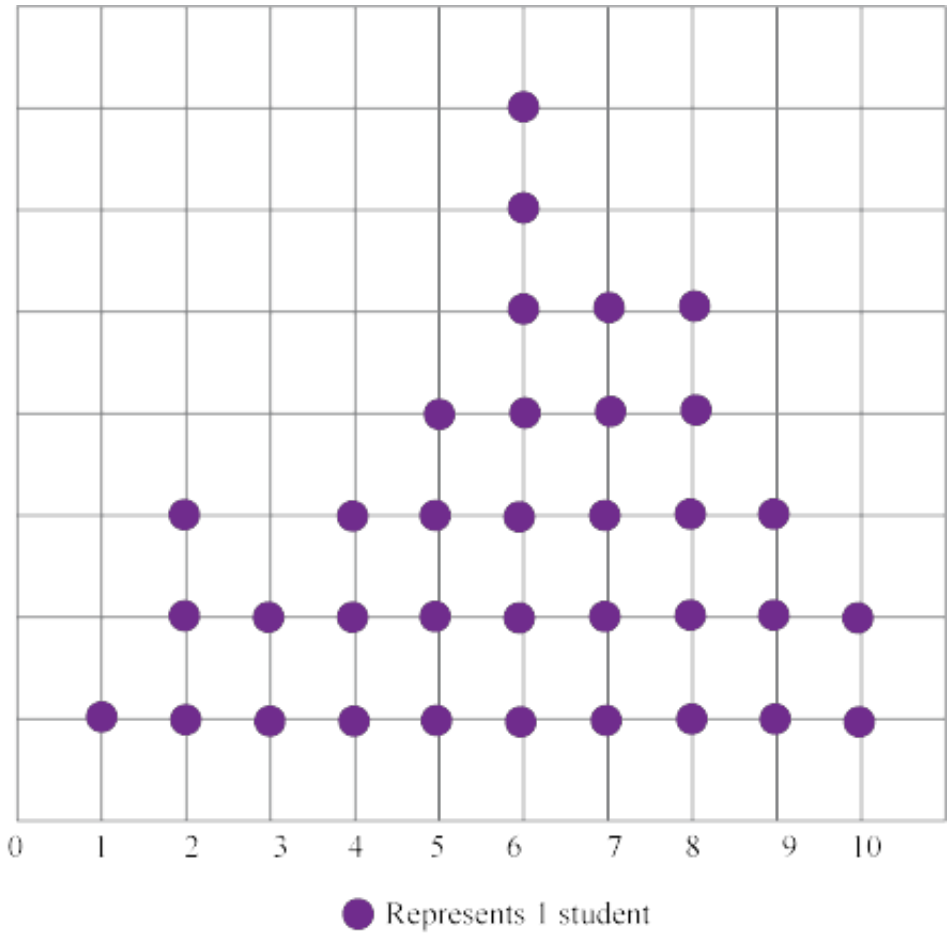
- a = 2, b = 44.7%
- a = 4, b = 66.7%
- a = 3, b = 61.6%
- a = 5, b = 33.7%

29) The dot diagram below shows the marks obtained by a group of students in a competition quiz. (Horizontal axis represents marks) a) How many students are there in the group? b)How many students scored more than 6 marks?



- a = 25, b = 10
- a = 35, b = 15
- a = 29, b = 21
- a = 31, b = 21

30) The dot diagram below shows the marks obtained by a group of students in a competition quiz. (Horizontal axis represents marks). Find a). the mode of the data set, b). the median mark?



- a = 4, b = 2
- a = 6, b = 8
- a = 6, b = 8
- a = 3, b = 9