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Assignment 1: Finding Quartile, Decile, Percentile.

Adataset is given as: [-26, -900, 700, 27, 10000, 16384, 8025, 49, -730, 800, 213, 523]

A. Task is to find values of Q_2, D_5, P_{50}, Q_3, P_{75}, D_2 & P_{20}.

B. Share your observation on the values found

Solution: Sorting the data set we find

-900, -730, -26, 27, 49, 213, 523, 700, 800, 8025, 10000, 16384.

Sl no	Sorted data set
1.	-900
2.	-730
3.	-26
4.	27
5.	49
6.	213
7.	523
8.	700
9.	800
10.	8025
11.	10000
12.	16384
	Sample Size $n = 12$

(A) $q_2 = \left(\frac{2}{4}\right) n = .5 \times 12 = 6$

$\therefore Q_2 = \left(\frac{213+523}{2}\right) = 368$

$\boxed{Q_2 = 368}$

$d_5 = \frac{5}{10} \times 12 = .5 \times 12 = 6$

$\therefore D_5 = \frac{213+523}{2} = 368$

$\boxed{D_5 = 368}$

$P_{50} = \left(\frac{50}{100}\right) \times n = .5 \times 12 = 6$

$\therefore P_{50} = \frac{213+523}{2} = 368$

$\boxed{P_{50} = 368}$

$$Q_3 = \frac{3}{4} \times n = .75 \times 12 = 9$$

$$\therefore Q_3 = (800 + 8025)/2 = 4412.5$$

$$\boxed{Q_3 = 4412.5}$$

$$P_{75} = \frac{75}{100} \times n = .75 \times 12 = 9$$

$$\therefore P_{75} = \left(\frac{800 + 8025}{2}\right) = 4412.5$$

$$\boxed{\therefore P_{75} = 4412.5}$$

$$d_2 = \frac{2}{10} \times n = 0.2 \times 12 = 2.4 ; \therefore d_2 \approx 3$$

~~$\therefore D_2 = 2.4 \approx$~~ $\therefore \boxed{D_2 = -26}$

$$P_{20} = \left(\frac{20}{100}\right) \times n = .2 \times 12 = 2.4 \quad \therefore P_{20} \approx 3$$

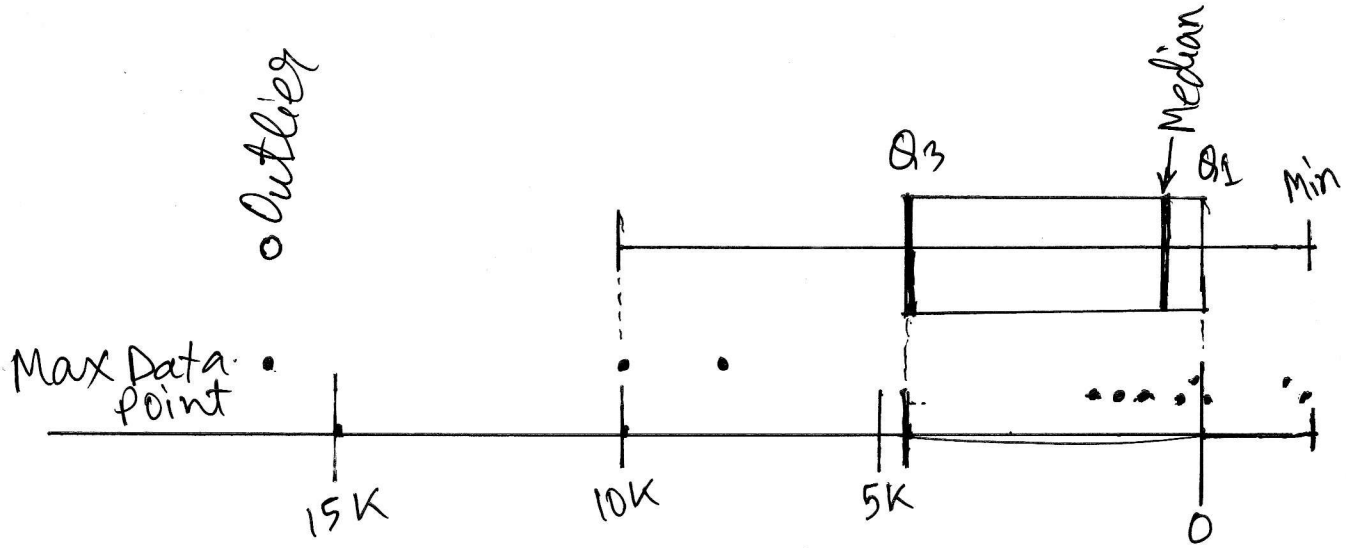
$\therefore \boxed{P_{20} = -26}$

B Sample Size, $N = 12$; Outlier: 16348

Minimum = -900; Maximum = 16348

$Q_1 = 0.5$; $Q_3 = 4412.5$; Mean $(\bar{x}) = 2919.1$

Median = 368; Skewness shape: Asymmetrical.



Boxplot for Dataset