

Daily Practice 8.5.2017

- Q1. Multiply out and simplify $7x(x - 4) + 2x(2x + 6)$
 $7x^2 - 28x + 4x^2 + 12x$
 $11x^2 - 16x$
- Q2. Work out 2.5% of 620 without a calculator
 $1\% \text{ of } 620 = 620 \div 100 = 6.2$ $0.5\% = 6.2 \div 2 = 3.1$
 $2\% \Rightarrow 6.2 \times 2 = 12.4$ $12.4 + 3.1 = 15.5$
- Q3. Write 12 minutes as a decimal of hours = $\frac{12}{60} = \frac{1}{5} = 0.2$
- Q4. $1\frac{2}{3} \times \frac{1}{7} = \frac{5}{3} \times \frac{1}{7} = \frac{5}{21}$
- Q5. What is the median of 2, 3, -8, 1, 7, 6?
 $-8, 1, 2, 3, 6, 7$
 $(2+3) \div 2 = 2.5$

Today we will be learning how to create a 5 figure summary for a set of data.

Recap

What is an average?

Why are there more than one type of average?

Which is the most commonly used average?

5.Figure Summary (Statistics) 8.5.17

A 5 figure summary consists of:

- The lowest number (L)
- The highest number (H)
- The median (Q_2)
- The lower quartile (Q_1) which is the median of the lower half of the data.
- The upper quartile (Q_3) which is the median of the upper half of the data.

5.Figure Summary

Example: Write down a five figure summary for the following set of homework scores

100, 50, 50, 47, 88, 56, 44, 78, 69, 81, 22, 69,

22, 44, 47, 50, 50, 56, 69, 69, 78, 81, 88, 100

$L = 22$ $H = 100$

Median (Q_2) = $\frac{56+69}{2} = 62.5$

$Q_1 = \frac{47+50}{2} = 48.5$ $Q_3 = \frac{78+81}{2} = 79.5$

Example 2: Write down a five figure summary for the following set of ages

6, 14, 24, 24, 25, 33, 33, 53, 55, 67, 71
 24, 33, 71, 6, 24, 55, 33, 67, 53, 25, 14

$L = 6$ $H = 71$ $Q_1 = 24$
 Median (Q_2) = 33 $Q_3 = 55$

Do the same for these!

(a) -3, 5, 104, 0.37, 2, 1, 11, -8.5, $\frac{1}{5}$

-8.5, -3, $\frac{1}{5}$, 0.37, 1, 2, 5, 11, 104

(b) 0.03, 2×10^2 , 9.51, 11.6, 0.038, 4×10^{-2}

★ Daily Practice 10.5.2017 ★

Q1. Solve $6x - 5 = 2x + 15$

$$4x - 5 = 15 \quad 4x = 20 \quad x = 5$$

Q2. Calculate the value of a car that was bought for £14 000 and depreciated by 14% in its first year of being purchased

$$14000 \div 100 = 140 \quad 140 \times 14 = 1960 \quad 14000 - 1960 = \underline{12040}$$

Q3. $2\frac{1}{3} - \frac{1}{5}$ $\frac{7}{5} - \frac{1}{5}$ $\frac{35}{15} - \frac{3}{15}$ $\frac{32}{15}$ $\frac{32}{15} / \frac{2}{3}$

Q4. Lisa ate a chocolate bar that has 20 grams of sugar in it. Her guideline daily allowance of sugar is 80 grams. What percentage of her GDA of sugar has she eaten?

$$\frac{1}{4} \quad 25\%$$

Daily Practice Non-Calculator 11.5.2017

Q1. Calculate the surface area of a cube with side length 1.5cm

$$1.5 \times 1.5 = 2.25 \times 6 = 13.5 \text{ cm}^2$$

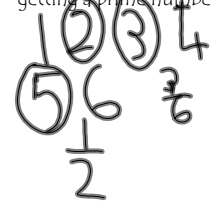
Q3. Find 17% of 30000

$$30000 \div 100 = 300 \quad 300 \times 17 = 5100$$

Q4. Solve $2(x - 3) + 5 = 3(x - 4)$

$$\begin{aligned} 2x - 6 + 5 &= 3x - 12 \\ 2x + 6 + 5 &= 3x \\ 6 + 5 &= x \\ x &= 11 \end{aligned}$$

Q5. If you roll a dice, what is the probability of getting a prime number?



5 Figure Summary

Do the same for these!

(a) -3, 5, 104, 0.37, 2, 1, 11, -8.5, $\frac{1}{5}$

$$-8.5, -3, \frac{1}{5}, 0.37, 1, 2, 5, 11, 104$$

Median $Q_2 = 1$

$$Q_1 = \frac{-3 + \frac{1}{5}}{2} = -1.4 \quad Q_3 = \frac{5 + 11}{2} = 8$$

(b) 0.03, 2×10^2 , 9.51, 11.6, 0.038, 4×10^{-2}

$$0.03, 0.038, 0.04, 9.51, 11.6, 200$$

Today we will be learning about interquartile range.

Inter-Quartile Range & Semi-Interquartile Range

The inter-quartile range is the spread of the middle of a set of data.

It ignores extreme values.

$$\text{The Inter-Quartile Range} = Q_3 - Q_1$$

$$\text{Semi-Interquartile Range (S.I.Q.R)} = \frac{Q_3 - Q_1}{2}$$

Inter-Quartile Range & Semi-Interquartile Range

Ten couples took part in a dance competition.

The couples were given a score in each round.

The scores in the first round were

$$16 \quad 27 \quad 12 \quad 18 \quad 26 \quad 21 \quad 27 \quad 22 \quad 18 \quad 17$$

(a) Calculate the median and semi-interquartile range of these scores.

$$\text{Median} = \frac{18 + 21}{2} = 19.5 \quad Q_1 = 17 \quad \text{S.I.Q.R} = \frac{26 - 17}{2} = 4.5$$

(b) In the second round, the median was 26 and the semi-interquartile range was 2.5.

Make two valid comparisons between the scores in the first and second rounds.

- ① On average, the couples scored better in the second round (26 > 19.5).
- ② In the second round, the scores were closer together (more consistent) because $2.5 < 4.5$.

Inter-Quartile Range & Semi-Interquartile Range

Calculate the **median** and **lower** and **upper quartiles** for each of the following sets of values. Hence, calculate the **semi-interquartile range** of each.

(a) 13, 13, 15, 19, 23, 23, 24, 26, 27.

(b) 2.4, 2.6, 2.9, 2.9, 3.1, 3.1, 3.3, 3.6, 3.6, 3.8, 4.1, 4.1, 4.5, 4.7, 4.9, 5.0.

(c) 101, 108, 109, 112, 112, 115, 120, 121, 125, 131, 131, 134, 135, 138, 140.

2.

A shoe shop assistant took a note of the sizes of a popular make of trainers that were sold in her shop last week.

1, 4, 4, $4\frac{1}{2}$, 5, 5, 5, $5\frac{1}{2}$, $5\frac{1}{2}$, 6, 6, 6, $6\frac{1}{2}$, $6\frac{1}{2}$, 10.

Calculate the **range** and the **S.I.Q.R.** and say why the S.I.Q.R. would be a better indicator of the true spread of the shoe sizes sold last week.

