

Statistics

Lecture 11: | Dotplot – Summary Statistics

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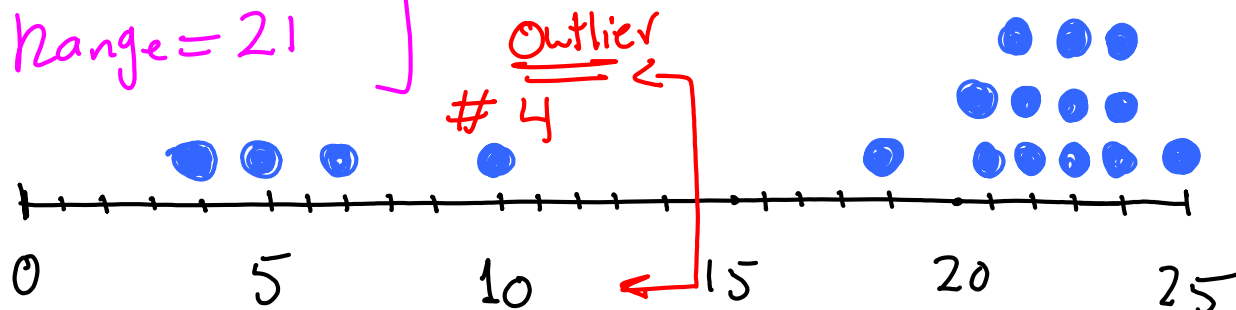
<https://youtube.com/drmelhosseini>

In the state of Connecticut, the Department of Motor Vehicles (DMV) requires 16- and 17-year-olds to take a **25-question knowledge** test in order to obtain a Learner's **Permit**. To **pass**, prospective drivers must correctly **answer at least 20 questions**

On one Monday, **22 teenagers** took the test. The dot plot below shows their scores

mode = 23
 min = 4
 max = 25
 range = 21

1.5 IQR = 6
 $Q_1 - 1.5 IQR = 14$
 $Q_3 + 1.5 IQR = 30$



$$IQR = Q_3 - Q_1 = 24 - 20 = 4$$

• median $\Rightarrow \frac{x_{10} + x_{11}}{2} \Rightarrow \frac{22 + 23}{2} \Rightarrow \boxed{22.5}$

• $Q_1 \Rightarrow 0.25(23) \Rightarrow 5.75$

$$Q_1 = \frac{x_5 + x_6}{2} = \frac{19 + 21}{2}$$

$\boxed{Q_1 = 20}$

• $Q_3 \Rightarrow 0.75(23) = 17.25$

$$Q_3 = \frac{x_{17} + x_{18}}{2} = \frac{24 + 24}{2}$$

$\boxed{Q_3 = 24}$