

Lesson #14 (week #7) Section 1 of 2

Recorrection (example)

$\frac{\chi^2}{u}$	$\frac{\chi + \chi}{u}$	$\frac{\chi - \chi}{u}$
$u = 5$	$u = 5 + 5$	$u = 0$ (no change)
$\sigma^2 = 4$	$\sigma^2 = 4 + 4 \rightarrow \sigma^2$	
$\sigma = 2$	$\sigma = \sqrt{4+4} \rightarrow \sigma$	

Nov 9-2:03 PM

I- Different types of Distribution

- Binomial Distribution
- Bell curve
- Skewed
- Uniform

Nov 9-2:09 PM

Uniform Distribution: Looks like a straight line

Area (total) = 1

base x height

$(b-a) \cdot \frac{1}{2}$

$2 \times \frac{1}{2} = 1$

$3 \times \frac{1}{3} = 1$

$4 \times \frac{1}{4} = 1$

Nov 9-2:12 PM

Consider the density curve plotted below:

Base x height $3 \times 0.2 = 0.6$

Base x height $4 \times 0.2 = 0.8$

height = 0.2

check $5 \times 0.2 = 1 \checkmark$

Find $P(X \leq 25)$: 0.6

Find $P(X > 23)$: 0.8

Calculate the following: Q1: $\frac{24.5 - 22}{2} = 1.25 + 22 = 23.25$

Q3: $\frac{27 - 24.5}{2} = 1.25 + 24.5 = 25.75$

IQR: $25.75 - 23.25$

Nov 9-2:20 PM

Continuous variable

The probability density of a random variable X is given in the figure below.

$\frac{1}{2} \left\{ \begin{array}{l} \text{Base} \\ \text{Height} \end{array} \right.$

$\frac{1}{2} \cdot 2 = 1$

Base $(1.42 - 0.1) \cdot \frac{1}{2} = \text{Area}$

height

From this density, the probability that X is between 0.1 and 1.42 is:

Nov 9-2:48 PM

Consider the density curve plotted below:

$\frac{b \cdot h}{2} = \text{Area of Triangle}$

Trapezoid $\frac{(a+b) \cdot h}{2}$

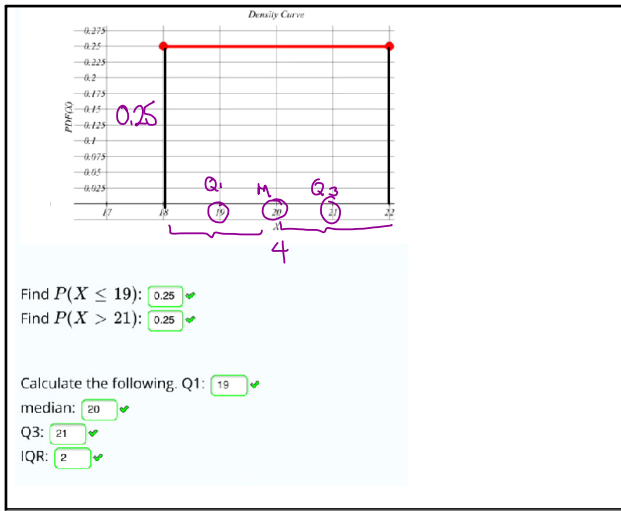
Find $P(X < 0.16)$:

Find $P(X > 0.24)$:

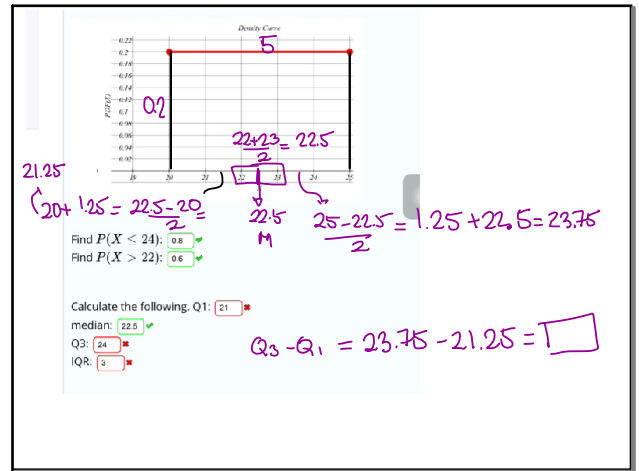
Find the median of X:

median - divide the picture in such a way that you will have two sections with equal areas

Nov 9-2:54 PM



Nov 9-2:34 PM



Nov 9-2:36 PM