Name: _____

Valencia College
Division of Architecture, Engineering, and Technology
EGN 2025 Probability and Statistics for Engineers
Spring 2015
Instructor: Dr. Kwabena Ofosu, P.E.

Quiz 1B

You will receive credit for showing your steps even if your final answers are incorrect.

An airport security operator is responding to complaints about excessive queues at the security screening checkpoints for passengers. One checkpoint was monitored over a number of hours and the queue (number of passengers in line) observed were documented as follows:

26	18	12	15	4	21	19	18	13	18	22	17	11	17	12	18	22
20	10	14	21	16	21	21	21	19	19	15	23	14	17	19	20	8
13	16	14	26	11	19											

1. Select an appropriate class size to construct a frequency distribution. Show your calculation or explain your reasoning? **(2 points)**

low value = 4, high value = 26
range = 26-4 = 22. We need 5-20 classes
$\frac{22}{5} = 4.4$ so lets use class size of 5.
And we start from zero so we get 'round' numbers,

2. Complete the following frequency table for the airport data **(8 point)**

Class	Class Mid Point	Tally	Frequency	Cumulative Frequency	Relative Frequency	Cumulative Relative Frequency
[0,5)	2.5	/	1	1	0.025	0.025
[5,10)	7.5	/	1	2	0.025	0.05
[10,15)	12.5	~~HHHH~~	10	12	0.25	0.3
[15,20)	17.5	~~HHHHHH~~/	16	28	0.4	0.7
[20,25)	22.5	~~HHHH~~	10	38	0.25	0.95
[25,30)	27.5	//	2	40	0.05	1.0

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Quiz 1A

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Data: 40 intermediate-size vehicles were tested for their highway gas mileage (mpg). The data obtained is as follows

19.7	28.8	21.5	25.2	22.5	21.4	22.2	20.8	22.6	19.4
21.9	22.0	20.5	23.0	19.3	26.1	19.9	27.9	21.7	21.3
32.0	16.5	27.0	24.0	17.6	12.2	14.8	15.9	35.5	18.3
16.6	23.8	11.8	26.3	31.0	26.9	36.5	19.0	27.1	31.5

1. Select an appropriate class size to construct a frequency distribution. Show your calculation or explain your reasoning? **(2 points)**

low value = 11.8, high value = 36.5
range = 36.5 - 11.8 = 24.7 ≈ 25
so if we use class size of 5 we will have at least 5 classes. We always 5 - 20 classes.
And we can start at 'sound' value like 10.

2. Complete the following frequency table for the gas mileage data **(8 point)**

Class	Class Mid Point	Tally	Frequency	Cumulative Frequency	Relative Frequency	Cumulative Relative Frequency
[10, 15)	12.5	///	3	3	0.075	0.075
[15, 20)	17.5	//// ////	10	13	0.25	0.325
[20, 25)	22.5	//// //// ////	14	27	0.35	0.675
[25, 30)	27.5	//// ///	8	35	0.2	0.875
[30, 35)	32.5	///	3	38	0.075	0.95
[35, 40)	37.5	//	2	40	0.05	1.0