Lecture 03A: univariate data analysis

Help Center

Warning: The hard deadline has passed. You can attempt it, but **you will not get credit for it**. You are welcome to try it as a learning exercise.

Important note: As mentioned in class last Friday, there were several requests to post the quizzes earlier.
To help you work on the quiz earlier, the quizzes will be based on the textbook material.

This quiz is based on material from pages 38 to middle of 45 from the course textbook. Videos will be posted on this content on Monday.

You have 1 attempt for the quiz. Please read the instructions carefully. Please double check your answers before submitting.

Solutions will be released when the quiz closes, at 09:25am, Tuesday, 20 January 2015.

- [ ] **In accordance with the Coursera Honor Code, I (Kevin Dunn) certify that the answers here are my own work.**

Question 1

Select *all features* that apply to the normal distribution:

- [ ] The peak value is usually indicated with the symbol μ, representing the mean.
- [ ] The approximate area between $-\sigma$ and σ is 70%
- [ ] It is symmetric in appearance.
- [ ] The standard deviation is indicated with the symbol σ.

Question 2

Have you installed and used the `car` library in R. (you must answer "Yes" to get full grade). If you haven't yet done so, please do so, by following the software tutorial, steps 11, 12 and 13.

- ◯ Yes, I have installed the `car` library and tried to use the `qqPlot(...)` function.
- ◯ No, not yet.

Question 3

For the standardized normal distribution, for a variable $z \sim \mathcal{N}(0, 1)$

(*check all that correctly apply*)

- ☐ In R, writing `pnorm(1, mean=0, sd=1)` is the same as `pnorm(1)`
- ☐ In R, using `pnorm(0)` gives a value of 0.0 as well.
- ☐ the probability of observing a value of $z \leq -1$ is about 16%.
- ☐ as $z \to \infty$, the cumulative area under the curve also $\to \infty$.
- ☐ if there was a probability of 2.5% of observing something, that would correspond to a z value of -1.96.

Question 4

A food production facility fills bags with muffin mix with a listed bag weight of 500 grams. The packaging system is set to fill bags with a mean weight of 520 grams. Long term data from the facility shows the variance of fill weights is 3.16 grams, and a q-q plot of the fill weights confirms a normal distribution.

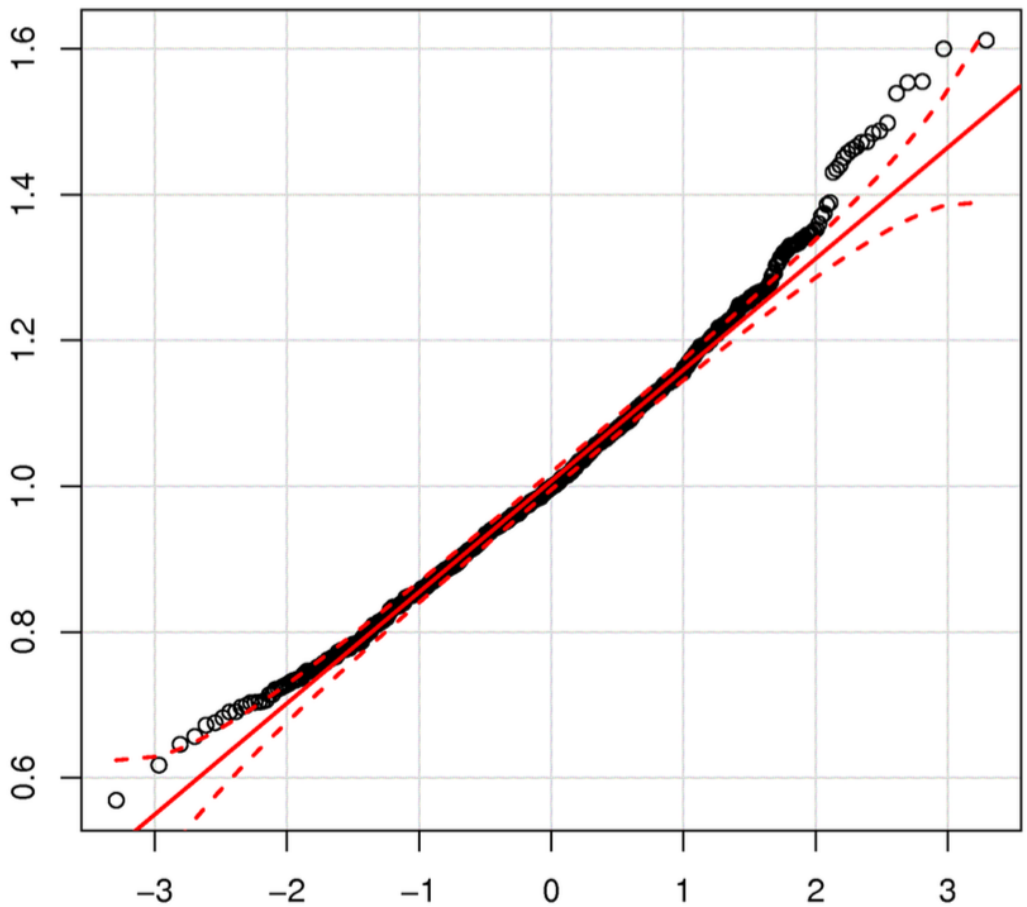
Out of 5000 boxes, approximately how many will be under the specified weight of 500 grams?

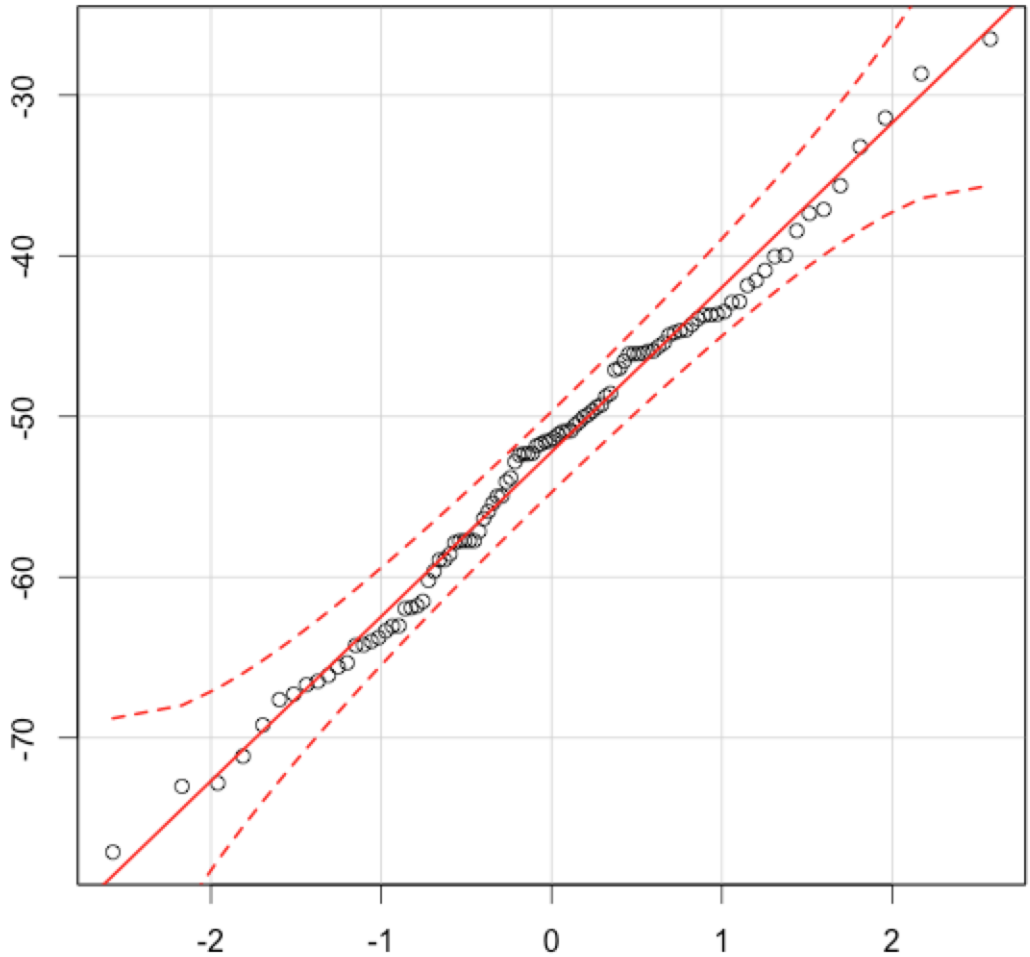
- ◯ 13
- ◯ 57
- ◯ 115
- ◯ 274
- ◯ None

Question 5

Which of these data shown are from a normal distribution? The q-q plots have the normal z on the x-axis in all cases, and 95% bounds are shown.

(*check all that apply*)

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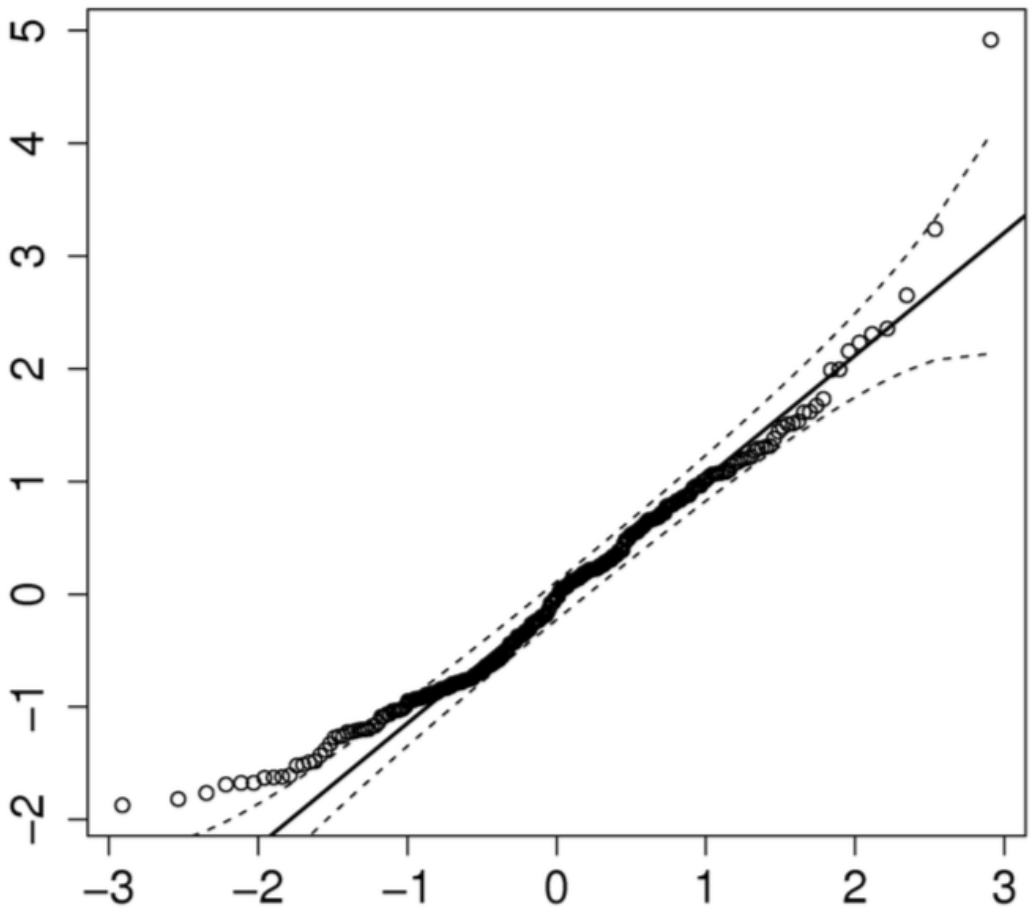
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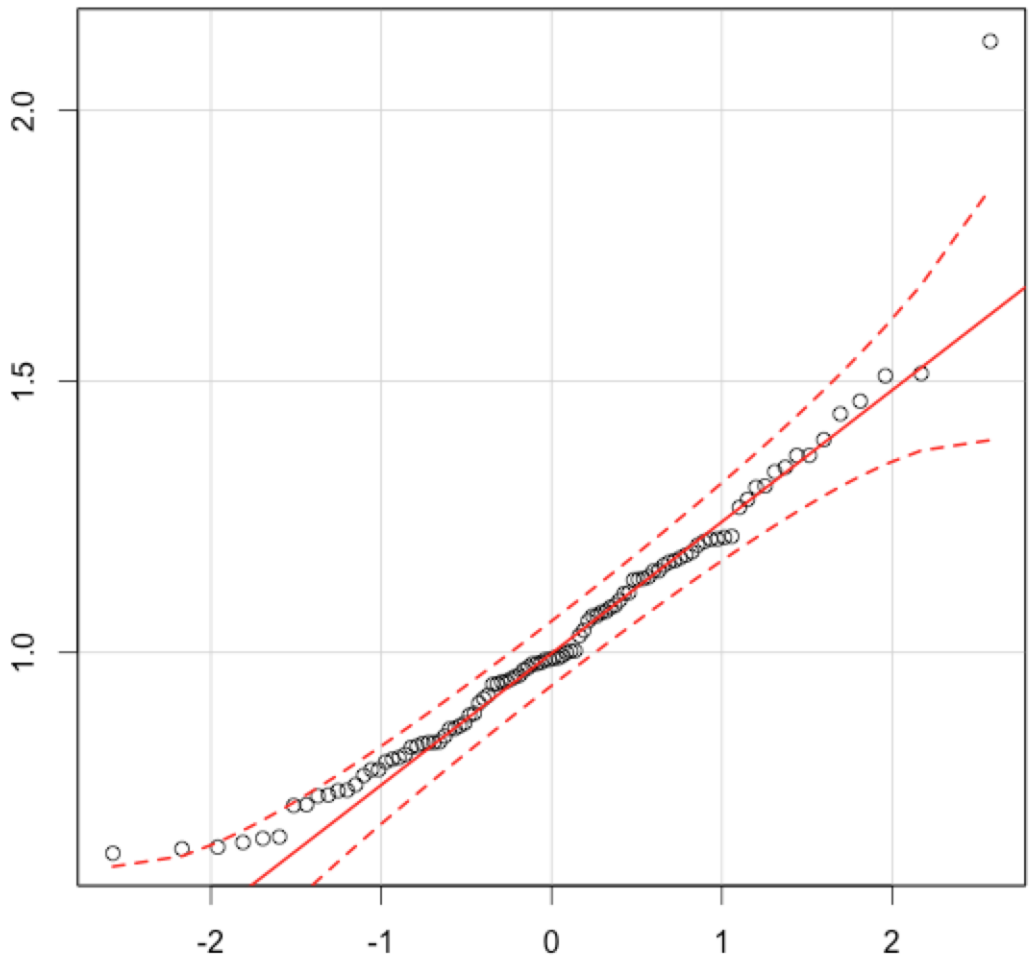

Question 6

The data of the temperatures from your company's baking ovens in Hamilton follow an approximate F-distribution, and range between 100 and 150°C.

You want to compare the data to another baking facility in Vancouver, so you start by standardizing them. After standardization:

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(*check all that correctly apply*)

- [ ] the median of the standardized data will be zero.
- [ ] the variance of the data set will be 1.0
- [ ] the standard deviation of the data set will be 1.0
- [ ] the mean of the standardized data will be zero.

- [ ] **In accordance with the Coursera Honor Code, I (Kevin Dunn) certify that the answers**

here are my own work.

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You cannot submit your work until you agree to the Honor Code. Thanks!