1. (3 points) Classify each of the following types of data as quantitative, nominal or ordinal **and** suggest a graph for each variable

(a) number of phone calls you made yesterday

Quantitative  \rightarrow a histogram

(b) air temperature today at 6am

Quantitative  \rightarrow a histogram

(c) major of a student as SU

Nominal  \rightarrow a bar graph

2. (3 points) A statistician is preparing report for *Consumer Report* magazine. The data he is working with relates to the cell phones and Minitab output is below

![Histogram of monthly minutes used](image)

![Descriptive Statistics: monthly minutes used](image)

(a) Is distribution of minutes used symmetric, left skewed or right skewed?

Right skewed

(b) State measures of central tendency. Do they support or contradict your answer about symmetry/skewness of the data? Locate two measures of central tendency on the histogram above.

\[ \bar{x} = 407.5 \]

\[ M = 250 \]

\[ \bar{x} > M \iff \text{right skewed data} \]

(c) Another variable statistician has in his data is whether the phone has internet access. Suggest at least one suitable graphical display for that variable.

A pie chart or bar graph

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3. (4 points) A study published in *Current Allergy & Clinical Immunology* (Mar. 2004) investigated allergic reactions of dental patients to local anesthetics. Based on a survey of dental practitioners, the study reported that the mean number of units (ampules) of local anesthetics used per week by dentists was 79, with a standard deviation of 23.

(a) What percentage of dentists use more than 33 units of local anesthetics per week?

\[
79 - 2 \cdot 23 = 33 \Rightarrow \text{33 is 2 std. dev. below mean according to Chebychev's rule at least 75% of data is between 33 and } 79 + 2 \cdot 23 = 125 \Rightarrow \text{at least 75% of dentists use more than 33 units of local anesthetics per week.}
\]

(b) Assuming that the data has a mound-shaped distribution, what percentage of dentists use more than 125 units of local anesthetics per week?

\[
\begin{array}{c}
\frac{1}{12.5} \\
+ \frac{7.9}{4.6}
\end{array}
\]

\[
\approx 95\%
\]

\[
\approx 2.5\% \text{ of dentists use more than 125 units of anesthetics per week.}
\]