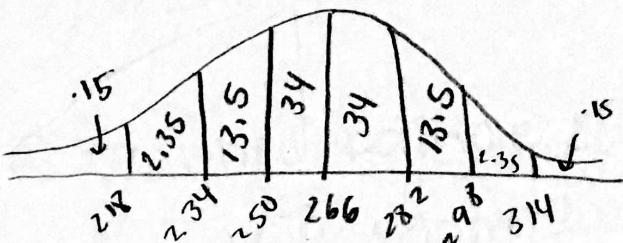


UNIT 6 STATISTICS REVIEW

Key

- ① If a z-score is zero, it means the value was equal to the mean.

②



- b) 49.85%
c) 250-282
d) .15%, probably cheated

③ a) $\text{normalcdf}(-1099, 20, 24.1, 4.3) = .17$

b) $\text{normalcdf}(22, 27, 24.1, 4.3) = .437$

c) $500 \times \text{normalcdf}(29, 1099, 24.1, 4.3) = 63.6 \rightarrow 63 \text{ students}$

④ $\text{normalcdf}(2065, 1099, 2000, 30) = .0151 = 1.51\%$. So very unlikely.

⑤ Math:

$$\frac{78-70}{8} = 1$$

English:

$$\frac{78-74}{8} = \frac{1}{2}$$

so **math**

⑥ $\text{invnorm}(.9, 120, 20) = \boxed{145.63}$ to be in 90th percentile

⑦ a) "Many people have said"

b) "violent crimes"

c) mentioning "Columbine tragedy"

- ⑧ a) Response Bias
 b) Undercoverage Bias
 c) Question wording Bias
 d) Voluntary response bias

- ⑨ a) Stratified Sample
 b) Simple Random Sample
 c) Cluster Sample
 d) Systematic Random Sample
 e) Convenience Sample

- ⑩ a) Experiment
 b) Observational Study
 c) Observational Study

⑪ a) $\frac{1}{\sqrt{1000}} = \pm .03$

so $\frac{402}{1000} = .402 \rightarrow .402 \pm .03 \quad \begin{array}{l} .402 + .03 = .432 \\ .402 - .03 = .372 \end{array}$

so: $\boxed{.372 - .432}$

b) No, only on the sample itself

⑫ a) $\frac{258}{400} = .632 \quad \frac{1}{\sqrt{400}} = .05 \rightarrow .632 \pm .05 \rightarrow .582 - .682$

b) $\frac{27}{60} = .45 \quad \frac{1}{\sqrt{60}} = .13 \rightarrow .45 \pm .13 \rightarrow .32 - .58$

⑬ $\frac{1}{\sqrt{x}} = .03 \rightarrow 1 = (.03)(\sqrt{x}) \quad \left(\frac{1}{.03}\right)^2 = (\sqrt{x})^2$

$\frac{1}{.03} = \sqrt{x}$

$\boxed{1111.11 = x}$

$\boxed{1112 = x}$