1 through 5.

$$e\left(\hat{p}\right) \pm \overset{b}{\left(1.96\right)} \frac{\sqrt{\hat{p}\,(1-\hat{p})}}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$$

(labels: b, d, c, a, e around the formula)
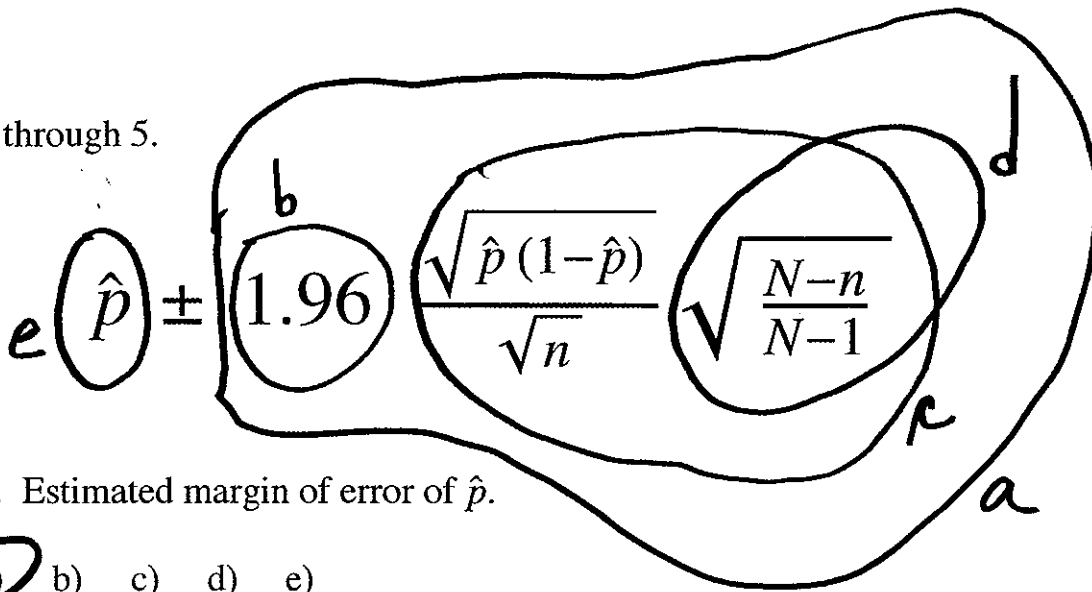
1. Estimated margin of error of $\hat{p}$.

   a) b)   c)   d)   e)

2. Estimated standard error of $\hat{p}$.

   a)   b) **c)** d)   e)

3. Estimate of p.

   a)   b)   c)   d) **e)**

4. Finite population correction factor.

   a)   b)   c) **d)** e)

5. Estimated standard deviation of the list of all possible $\hat{p}$.

   a)   b) **c)** d)   e)

6. z-score for 98% confidence.

   a)   1.282   b) 1.645   c) 1.96 **d) 2.326** d) 2.576

EXAM 1
KEY
*(ONE PARTICULAR
VERSION)

7. Approximate number of scientists whose 68% confidence interval would cover p if 500 scientists each draws their random sample independently.

a) 70   b) 450   c) 210   d) 280   e) 350 $\sim .7(500)$

8. Sample standard deviation s for list $\{0, 0, 0, 0, 10\}$.

a) 2.2361   b) 4.47214   c) 5.36656   d) 6.70820   e) 9.8387

9. Determine the probability under the standard normal curve to the left of $z = 1.29$.

a) 0.9649   b) .9015   c) 0.9788   d) 0.9726   e) 0.9830 $1.2 \boxed{.9015}$ $.09$

10. We've sample 100 men and, independently of them, 400 women, for score $x =$ LDL cholesterol level. The samples, from large populations, yield

	mean	women
n	100	400
sample mean	223	212
sample s	20	40

Estimated standard error of $\overline{X}_{men} - \overline{X}_{women}$.

a) $\frac{20}{10} + \frac{40}{20}$ b) $\sqrt{\frac{20}{10} + \frac{40}{20}}$ c) $\sqrt{\left(\frac{20}{10}\right)^2 + \left(\frac{40}{20}\right)^2}$

d) $\sqrt{\frac{20}{10} - \frac{40}{20}}$ e) $\sqrt{\left(\frac{20}{10}\right)^2 - \left(\frac{40}{20}\right)^2}$

11. We have randomly sampled 7 oil drill holes in a large field that will be examined for score x = yield projection. The **population distribution** of x is thought to be **normal.** The data gives sample mean yield of 27.4 and sample standard deviation s = 5.2. Give the **estimated margin of error for the sample mean**. Be sure that you use the correct entry of the correct table as it will make a big difference if you do not.

a) 14.2286   b) 3.32956   c) 2.0672   d) 4.80937   e) 9.61874

$$2.447 \frac{5.2}{\sqrt{7}} = 4 \frac{s}{\sqrt{n}}$$

No FPC   DF6

12. Estimated standard error for Bank One's estimate of GDP is 4.33. Estimated standard error for Wells Fargo's estimate of GDP is 3.87. Give the estimated standard error for the difference (Bank One's Estimate-Wells Fargo's Estimate).

PYTHAGORAS

a) $\sqrt{4.33^2 + 3.87^2}$ b) $\sqrt{4.33 - 3.87}$ c) $4.33 + 3.87$ d) $4.33 - 3.87$ e) None of them

13. The sample standard deviation s of a list x is 3.1. Determine the sample standard deviation of the list y = 2.8 x + 2.

$$d_y = 2.8 \, d_x = 2.8 \, (3.1)$$

a) $2.8^2 \, 3.1^2$ b) $2.8^2 \, 3.1^2 + 4$ c) $2.8 \, (3.1)$ d) $2.8 \, (3.1) + 2$ e) None of them

14. A large field is divided up into 1000 small non-overlapping regions. From a random sample of these regions we determine a 95% confidence interval [45.2, 61.4] for the population mean number of shoots of grass per small region. Give a 95% confidence interval for the total number of shoots of grass in the entire field.

a) [45200, 61400]   b) [55800, 59200]   c) [452, 614]   d) [235.4, 751.8]
e) None of them

$$\frac{\sqrt{\hat{p}\hat{q}}}{\sqrt{n}} \qquad \frac{x}{\sqrt{n}} \qquad \sqrt{\frac{N-n}{N-1}}$$