## I. What type of sample statistic are you being asked about?

| | Count or Sum or Total | Proportion or Percentage (which is a proportion*100) | Mean or Average |
|---|---|---|---|
| Mean | $\mu_x$=np | $m_{\hat{p}} = p$ | $m_{\bar{x}} = m$ |
| SD | $s_x = \sqrt{np(1-p)}$ see page 380 | $s_{\hat{p}} = \sqrt{\frac{p(1-p)}{n}}$ see page 382 | $s_{\bar{x}} = \frac{s}{\sqrt{n}}$ see page 399 |
| Notes | In either the case of counts or of percentages, you want to use the normal distribution to represent the sampling distribution (otherwise you are required to use something like the formulas which define Table C). The normal approximation applies when n is large. Large is defined as np ≥ 10 and np(1-p) np ≥ 10 | | Read about the CLT on page 401 and beyond. (1) If the population is normal then the sample means x-bar will be normal (2) if the population is not normal the sample means will still be normal if n is large and sigma is known or measurable. |

## II. How are you being asked to apply this statistic?

| | Count or Sum or Total | Proportion or Percentage (which is a proportion*100) | Mean or Average |
|---|---|---|---|
| Chapter 5 calculating chances | Find a Z score then the area from Table A using: $\frac{n\hat{p} - np}{\sqrt{np(1-p)}}$ example 5.19 | Find a Z score then the area from Table A using: $\frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$ examples 5.7, 5.8 | Find a Z score then the area from Table A using: $\frac{\bar{x} - m}{s / \sqrt{n}}$ Examples 5.26, 5.29 |
| Chapter 6.1 calculating confidence intervals | $n\hat{p} \pm Z^* * (\sqrt{n\hat{p}(1-\hat{p})})$ find Z* from the last row of table D or calculate from Table A. Not done in Chapter 6. | $\hat{p} \pm Z^* * (\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$ find Z* from the last row of table D or calculate from Table A Example 6.17, 6.58 | $\bar{x} \pm Z^* * (\frac{s}{\sqrt{n}})$ if n is large (> 25) then you could use s for sigma find Z* from the last row of table D or calculate from Table A. Examples 6.15, 6.80 |
| Chapter 6.2 Hypothesis Testing - use Z test | $Z = \frac{n\hat{p} - np}{\sqrt{np(1-p)}}$ Not done in Chapter 6. | $Z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$ Examples: 6.52 | $Z = \frac{\bar{x} - m}{s / \sqrt{n}}$ Examples: 6.76, 6.81 |