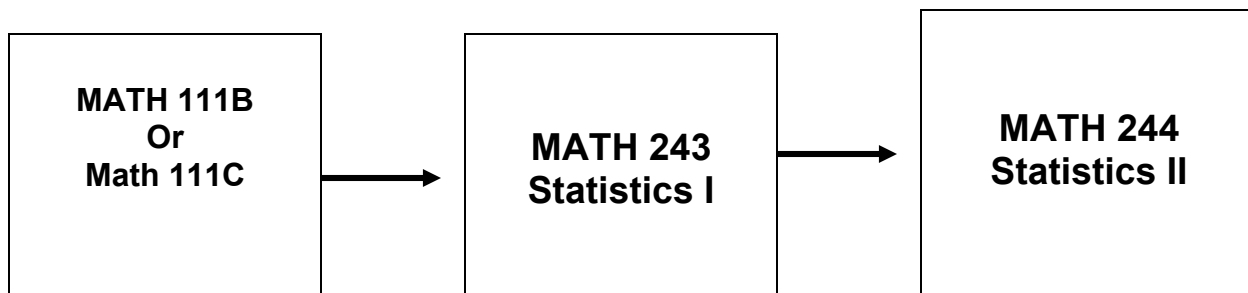


**Portland Community
College**

MATH 243

Statistics I



ARE YOU PREPARED?

- ✓ The course will offer little or no time for any type of review; it assumes that you are prepared to do the work the first day of class.
- ✓ This mini quiz is meant to serve only as an indicator of a few of the math skills that you are expected to know at the beginning of this course. Do not use these problems as a study guide thinking that they will adequately prepare you for the course.
- ✓ These example problems are merely representative of some of the most important concepts that are taught in the prerequisite courses.

Below are some of the major topics
covered in MATH 243

1. Describe Data
 - A. Construct and interpret graphical displays
 - B. Calculate and interpret numerical summaries
2. Produce Data
 - A. Experiments and observational studies
 - B. Randomization
 - C. Sampling design
3. Probability
 - A. Randomness
 - B. Probability models
 - C. Random variables
4. Sampling Distributions
 - A. Counts and proportions
 - B. Sample means
5. Estimation
 - A. Confidence interval for a population mean
 - B. Sample size

To be successful studying the topics covered in this course, students should be appropriately prepared by: #1 Taking the prerequisite math course within the last three years with a passing grade of A or B, or within the last one year with a passing grade of C, **or** #2 placing into the course by the ASSET placement test

Below is a sample of some skills you should have **BEFORE** entering MATH 243.

1. If $z = \frac{a-b}{c}$, solve for a
2. If $z \frac{m}{\sqrt{n}} = 3$, solve for n
3. Using mental math only (no calculator, no pencil & paper), evaluate:
 - a) $\frac{a-b}{c}$, when $a = 14$, $b = 13$, $c = 8$, and $n = 4$
 - b) $\frac{x-np}{\sqrt{np(1-p)}}$ when $x = 16$, $n = 100$, and $p = .2$
 - c) $\frac{1}{2} + \frac{1}{4} - \frac{1}{8}$
4. Refer to the scatter plot in Figure 1. a) Find the slope of the line. b) Write an equation of the line. c) Interpret the slope in the context of the data.

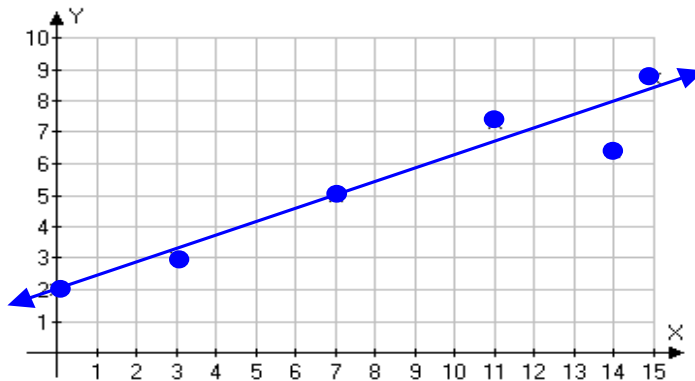


Figure 1: y is the number of units produced per week by an employee who has been on the job for x years

5. Use your calculator to evaluate: (round each result to 3 significant digits)
 - a) $.463 \pm 1.96 \sqrt{\frac{(.463)(.537)}{423}}$
 - b) $(-1 - 1.71)^2 (.2) + (0 - 1.71)^2 (.3) + (1 - 1.71)^2 (.5)$

c.
$$\frac{51,800 - 55,000}{\frac{4500}{\sqrt{8}}}$$

d.
$$f(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} \quad \text{at } x = 0$$

6. Given $f(x) = x - 20$, find:

a) the x - and y - intercepts of the graph of $y = f(x)$

b) $f^{-1}(-4)$

7. A nicotine patch or a placebo patch was randomly assigned to each of 240 smokers who expressed a desire to quit. Here are the numbers who had quit and not quit smoking after 8 weeks of wearing the patches.

	Smoking after 8 weeks	
	Yes	No
Nicotine Patch	64	56
Placebo Patch	96	24

a) What proportion of the subjects in the study quit smoking after 8 weeks?

b) What proportion of the nicotine patch users quit after 8 weeks?

ANSWERS

1. $a = b + cz$ 2. $n = \frac{z^2 m^2}{3^2}$ 3. a) $\frac{1}{4}$ b) -1 c) $\frac{5}{8}$

4. a) The slope is $\frac{3}{7}$ b) The equation is: $y = \frac{3}{7}x + 2$

c) The mean weekly production increases at a rate of $\frac{3}{7}$ units per week per year on the job.

5. a) .415, .511 b) 2.60 c) -2.01 d) .399

6. a) (20, 0), (0, -20) b) 16 7. a) .333 approx b) .467 approx.

How many of these problems can you miss and still succeed in MATH 243?

Ideally, NONE.

These problems are just a sample of the skills that you should be familiar with **BEFORE** taking this course.

If some of these ideas are not familiar to you, you should enroll in the prerequisite course, MTH 111B or MTH 111C.