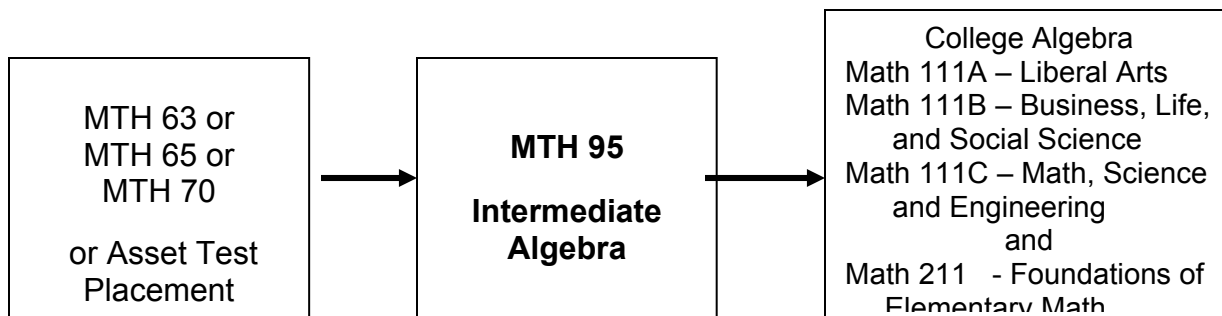


**Portland Community
College**

MATH 95

Intermediate Algebra



ARE YOU PREPARED?

- ✓ 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.
- ✓ 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.

Below are some of the major topics that are covered in MATH 95:

1. Applications and Modeling
 - A. Linear functions
 - B. Quadratic functions
 - C. Exponential functions

2. Graphing
 - A. Linear functions
 - B. Quadratic functions
 - C. Exponential functions

3. Solve equations and inequalities
 - A. Symbolically
 - B. Numerically
 - C. Graphically

4. Function concepts
 - A. Domain
 - B. Range
 - C. Inverses
 - D. Compositions
 - E. Transformations

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 95.

Without using a calculator except where indicated

1. Work with positive and negative real numbers, and the order of operations.
Simplify $-5 + (-4)(-3) - 3^2$
2. Simplify expressions:
 - a) $3(2x^2 - 3xy + y) - (y - x^2 + 2xy)$
 - b) $\frac{12a^5b^{-2}}{8a^{-3}b^7}$
3. Expand and collect like terms:
 - a) $(3x - 5)(6x + 7)$
 - b) $(2x - 3)^2$
4. Factor:
 - a) $x^2 - 5x - 14$
 - b) $6a^2b^3 - 3a^2b$
5. Solve for x:
 - a) $3x - (x + 4) - 5 = 5(x - 4) - 4$
 - b) $3x - 5y + 6 = 0$
 - c) $x^2 - 5x - 14 = 0$
6. Evaluate expressions:
If $x = -3$, evaluate $x^2 - 2x - 1$
7. Graph by HAND and on your GRAPHING CALCULATOR*
 - a) $4x + 3y = -12$
 - b) $y = x^2 - 5x - 14$
8. Find the equation of the line passing through 2 given points:
 $(2, -1)$ $(-1, -7)$
9. Solve a system of equations by all of the following methods: substitution, elimination by addition (linear combinations), and graphically.
Given:
$$\begin{cases} 2x + y = -3 \\ 3x + 4y = -2 \end{cases}$$
10. Solve a first degree inequality in one variable:
Given: $8 - 5x \geq 3x + 9$, solve for x

ANSWERS

1. a) -2 2. a) $7x^2 - 11xy + 2y$ b) $\frac{3a^8}{2b^9}$
3. a) $18x^2 - 9x - 35$ b) $4x^2 - 12x + 9$
4. a) $(x - 7)(x + 2)$ b) $3a^2b(2b^2 - 1)$
5. a) $x = 5$ b) $x = \frac{5y - 6}{3}$ c) $x = 7, x = -2$
6. 14

7. a)

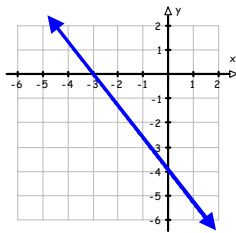


Figure 1: $4x + 3y = -12$

b)

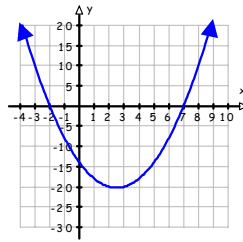


Figure 2: $y = x^2 - 5x - 14$

8. $y = 2x - 5$ 9. $x = -2, y = 1$
10. $x \leq -1/8$ or $-1/8 \geq x$

*** Students with no graphing calculator experience should enroll concurrently in Math 93.**

How many of these problems can you miss and still succeed in MATH 95?

Ideally, NONE.

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

If some of these ideas are not familiar to you, you should consider enrolling in one of the prerequisite courses (MATH 65 or MATH 70).