Washtenaw Community College

What You Should Know To Place Into MTH 125 or 169

Introduction: This document is intended to help you prepare to take the COMPASS test and place into MTH 169: Intermediate Algebra. If you wish to place into MTH 169, you should be able to complete the following problems correctly. The answers to the following questions can be found at the bottom of the last page of this document. It is strongly advised that you DO NOT take the math COMPASS test on the same day as orientation. It is further advised that you do not take the math portion of the COMPASS test on the same day that you take the reading or writing portions of the COMPASS test.

Studying for the COMPASS math test before you take it will help you insure that you are placed into a course that is at the right level for you.

1) **You should know everything on "What You Should Know To Place Into MTH 097".**

   Including: solving linear equations, solving systems of linear equations in two variables, graphing linear equations in two variables, simplifying polynomials, factoring polynomials, rules for exponents, simplifying radicals, solving quadratic equations and graphing quadratic equations. It will also help you considerably if you are comfortable using a graphing calculator.

2) **You should be able to simplify radicals.**

   Example Problems:

   Simplify

   (a) $\sqrt{45}$ (b) $\sqrt{\frac{25}{36}}$ (c) $\sqrt[3]{135}$ (d) $\sqrt[3]{\frac{8}{125}}$

3) **You should be able to factor polynomials.**

   Example Problems:

   Factor

   (b)$x^2 + 2x - 63$ (b) $3x^4 - 9x^2 - 30x^2$ (c) $5x^5 - 35x^4 + 50x^3$

4) **You should be able to solve proportion problems.**

   Example problems:

(a) In a proportion, if 16 is to 3 as y is to 9, then y =?

(b) In a proportion, if 5 is to 7 as 3 is to x, then x = ?

5) You should be able to square binomials.

Example problems

(a) $(x+9)^2 = ?$ (b) $(x-4)^2 = ?$ (c) $(3x-5)^2 = ?$

6) You should be able to evaluate algebraic expressions.

Example problems

(b) $If\ x = 2, then\ 3x - 7 = ?$ (b) $If\ x = \frac{2}{3}, then\ x^2 + 5x - 4 = ?$

7) You should be able to use a formula to solve an application problem.

Example problem

The perimeter of a rectangle, *P*, is calculated from the rectangle's width, *W*, and the rectangle's length, *L*, by the formula *P* = 2*L* + 2*W.* If the perimeter of a certain rectangle is 48 feet and the width of the rectangle is 7 feet, find the length of the rectangle.

8) You should know the relationship between the slopes of two lines that are parallel.

You should know the relationship between the slopes of two lines that are perpendicular.

Example problems.

(a) Two lines graphed in the Cartesian plane are parallel. The slope of one of the lines is $\frac{3}{7}$. What is the slope of the other line?

(b) Two lines graphed in the Cartesian plane are perpendicular. The slope of one of the lines is 5. What is the slope of the other line?

Answers to example problems:

2a) $3\sqrt{5}$ 2b) $\frac{5}{6}$ 2c) $3\sqrt[3]{5}$ 2d) $\frac{2}{5}$

3a) $(x-7)(x+9)$ 3b) $3x^2(x+2)(x-7)$ 3c) $5x^3(x-2)(x-5)$

4a) $y = 48$ 4b) $x = \frac{21}{5}$

5a) $x^2 + 18x + 81$ 5b) $x^2 - 8x + 16$ 5c) $9x^2 - 30x + 25$

6a) –1 6b) $-\frac{2}{9}$

7) 17 feet

8a) $\frac{3}{7}$.

8b) $-\frac{1}{5}$