What You Should Know To Place into MTH097

Introduction: This document is intended to help you prepare to take the COMPASS test and place into mth 097: Foundations of Algebra. If you wish to place into mth 097 you should be able to complete most of 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 067" Including:** operations on integers, operations on fractions, operations on decimals, the order of operations, and applications involving integers, fractions, and decimals.

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

   Example problems

   (a) If $\frac{15}{4} = \frac{90}{x}$, then x = ?

   (b) If $\frac{y}{7} = \frac{2}{5}$, then y = ?

3) **You should know how to solve application problems involving proportions.**

   Example problems

   (a) A certain mix of concrete requires a cement, sand, gravel ratio of 1:2:3 respectively. If 100 pounds of sand is used to make the concrete, how many pounds of gravel should be used?

   (b) Jane jogged 100 meters in 20 seconds. How long did she take to jog 80 meters?

4) **You should know how to solve application problems involving percents.**

   Example problems

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a) On Tuesday, Mary asked 50 students if they ate breakfast that morning. 75% of the 20 women who took the survey said they ate breakfast. 70% of the 30 men who took the survey said the ate breakfast. What percent of the 50 people ate breakfast that morning?

b) A store owner bought a shirt for $50. To calculate the selling price, she increased the price by 20%. Later, the shirt went on sale for 10% off. What was the final sale price of the shirt?

5) You should know how to evaluate algebraic expressions.

Example problems

a) When $x = -2$, $x^2 - 5x + 7$ = ?

b) When $y = 4$, $\frac{y^2 - y - 6}{y + 2}$ = ?

c) If x = 3 and y = 0, then xy + 2y – 7 = ?

6) You should know how to solve equations with one variable.

Example problems

a) If $x + 3\frac{1}{4} = 8$, then x = ?

b) If $x - 14 = 27$, then x = ?

Answers to practice problems

2a) 24 2b) $\frac{14}{5}$

3a) 150 pounds 3b) 16 seconds

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4a) 72%

4b) $54

5a) 21

5b) 1

5c) –7

6a) $4\frac{3}{4}$

6b) 41

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