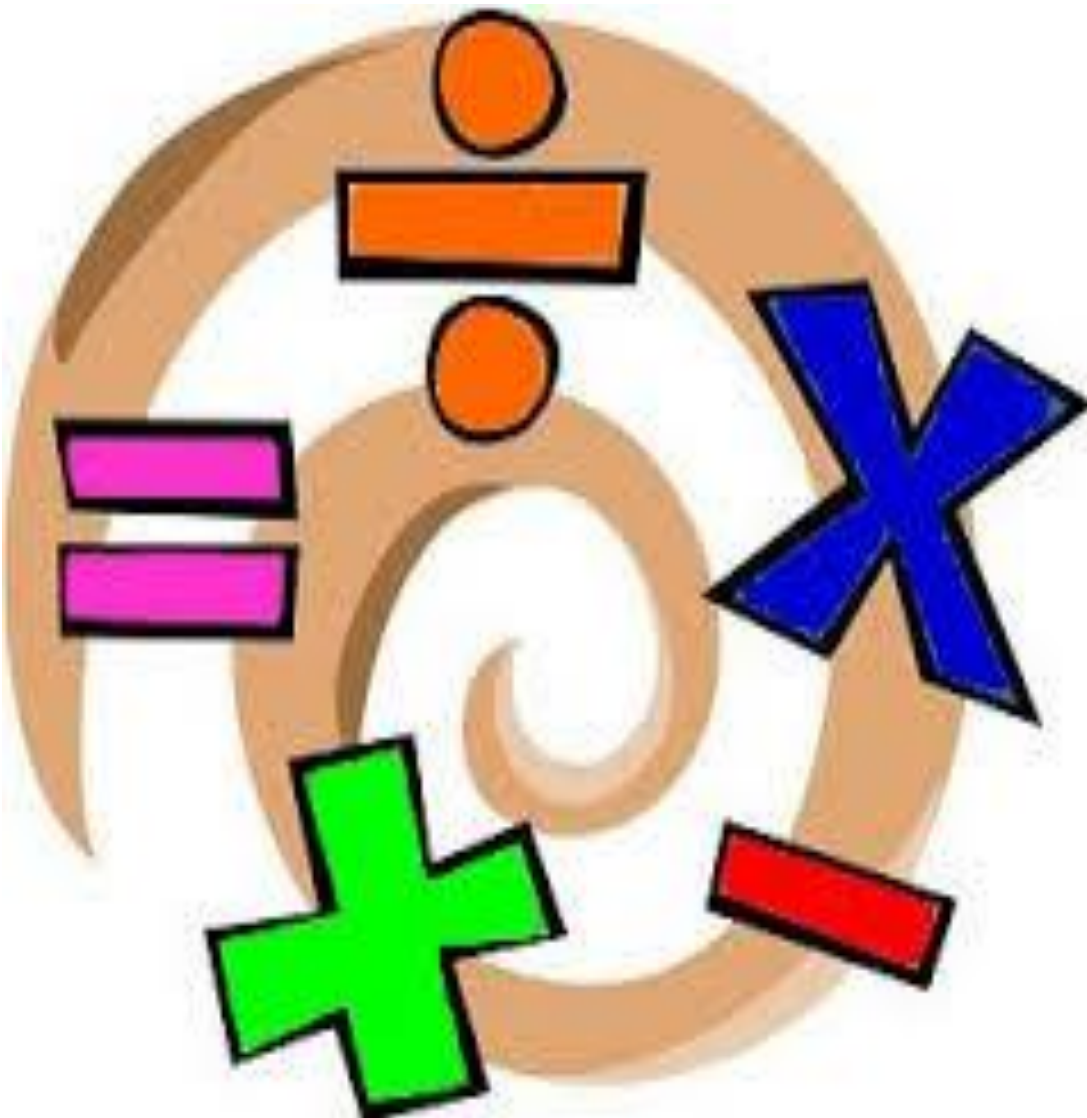**Math Review in Preparation for Quantitative Methods**

Math Module: Instructional Videos

Take as much time as you need to watch and review the 8 instructional YouTube videos (listed below), which cover a selection of math fundamentals that you will need while taking Quantitative Methods. On the next page is a review quiz, which reflects the material covered in those instructional videos.

Fractions	
--Numerator vs. Denominator	https://www.youtube.com/watch?v=3XOt1fjWKi8
--Converting fractions to decimals	https://www.youtube.com/watch?v=Gn2pdkvdbGQ
--Operations: multiplication	https://www.youtube.com/watch?v=8ikRUi6PaJU
--Operations: addition/subtraction	https://www.youtube.com/watch?v=52ZlXsFJULI
Graphing linear equations	https://www.youtube.com/watch?v=miG-JhttnZo
Decimals (Rounding)	https://www.youtube.com/watch?v=_MIn3zFkEcc
Solving for unknown variables	https://www.youtube.com/watch?v=bItk7pNaTZg
Summation Notation	https://www.youtube.com/watch?v=5jwXThH6fg4

Math Module: Quiz

Please complete this quiz after you are comfortable with the material presented in the videos; it is intended to gauge your comprehension of the material covered in the Math Module in preparation for Quantitative Methods. You are permitted to use a calculator, but are expected to show all of the steps to your calculations as well. Students that score 85 (out of 100) or higher are deemed prepared to proceed with the Quantitative Methods course this semester. Those who do not obtain a score of 85 or higher are permitted to continue with Quantitative Methods this semester, but are strongly urged to consider postponing the class and/or seeking additional support in solidifying their mastery of these foundational concepts. Please contact the Urban Policy program administrator or chair for more information on what support is available.

While you are permitted to consult the assigned videos, this quiz is an individual exercise and should be completed independently (i.e. without any outside consultation). This module is intended to reinforce foundational concepts that will be central to your comprehension of the material presented in Quantitative Methods; the instructors will assume your mastery of these concepts and will not be reviewing them thoroughly during the course.

1. Fractions
    a) Circle the denominator in the following fraction: $8/9$

    b) Circle the numerator in the following fraction: $11/15$

    c) Convert the following fraction into a decimal (*please round to the 4th decimal place*): $5/13$

    d) Convert the following fraction into a decimal (*please round to the nearest 100th*): $21/11$

    e) Convert the following decimal into a fraction: .058

    f) Complete the following (please show answers in the most reduced format, i.e. least common denominators):

        1. $\frac{2}{3} * \frac{11}{8}$

        2. $\frac{3}{10} + \frac{1}{10}$

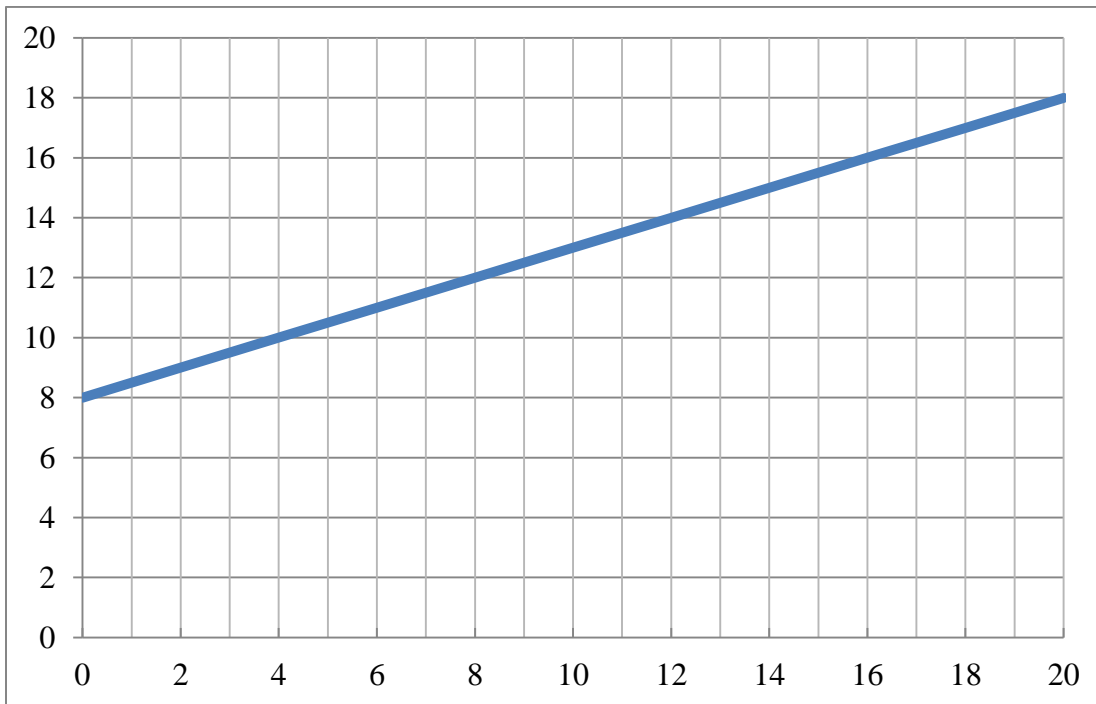   3. $\frac{3}{10} - \frac{7}{20}$

4. $\left(\frac{1}{8} * \frac{4}{5}\right) + \left(-2 * \frac{9}{15}\right)$

2. Graphing

    a) Graph the following line: $\frac{3}{5}x + 4$

    b) Graph the following line: $-\frac{1}{3}x + 6$

    c) Derive the equation of the following line:

3. Algebra: solving for unknown variables

    a. Solve for y: $10y + 3 = 2 + 8y$

    b. Solve for x: $x + 8(3 - 2x) = 0$

    c. Solve for z: $\frac{1}{4}z + 2 = \frac{9}{28}z - \frac{3}{10}$

4

4. Find the numerical answer to the following (show all work):

    a. $\sum_{i=1}^{22} i$

    b. $\sum_{i=1}^{5}(i^2)$

    c. $\sum_{i=1}^{10}(2i)$

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