Economics 102
Summer 2016
Quiz #0 with Answers

This is a ten point quiz. Answer all questions neatly and legibly. Although this quiz is not counted in your grade you want to do your best job so that you can get an accurate assessment of your baseline preparation for the class. Show your work.

1. (1 point) GDP for Gateland, a small economy, is $420 million in 2016. In 2017, Gateland estimates that its GDP will grow to $430.5 million. If this growth occurs, what will be the percentage change in Gateland's GDP from 2016 to 2017? Show how you found your answer.

Answer:
Percentage Change = {[(new Value) - (old value)]/(old value)}*(100%)
Percentage Change in Gateland's GDP = {[(430.5 - 420)]/420}*(100%)
Percentage Change in Gateland's GDP = [10.5/420]*(100%) = 2.5%

2. (1 point) You are told that the point (X, Y) = (20, 10) sits on a straight line with slope equal to (-4). Write an equation in y-intercept form for this line. Show your work.

Answer:
The general form of an equation in y-intercept form is: Y = mX + b where m is the slope and b is the y-intercept.
So, given the information provided in the problem:
Y = (-4)X + b
10 = (-4)(20) + b
b = 90
So, the equation can be written as: Y = (-4)X + 90

3. (1 point) You are told that the points (Q, P) = (5, 2) and (2, 8) sit on a straight line. Write an equation in slope-intercept form for this line. Assume that Q is measured on the horizontal axis. Show your work.

Answer:
The general form of the y-intercept form is: Y = mX + b
Replace the Y and X with the relevant variables in this example: P = mQ + b
Calculate the slope: m = (change in Y)/(change in X) = (change in P)/(change in Q) = (P1 - P2)/(Q1 - Q2) = ((2 - 8)/(5 - 2) = -2
So, P = (-2)Q + b
Use one of the given points to find the value of b:
2 = (-2)(5) + b
b = 12
So, the equation can be written as: P = (-2)Q + 12

4. (1 point) You are told that the X value is three times the Y value minus 10. Write an equation in slope-intercept form given this information. Show your work.

Answer:
Let's try some numbers first:
So, if Y is equal to 2, then to find the X value we need to multiple the Y value by 3 and then subtract 10. Thus, X = 3(2) - 10 = -4.
If Y is equal to 5, then to find the X value we need to multiple the Y value by 3 and then subtract 10. Thus, X = 3(5) - 10 = 5.
So, this equation we are writing must contain the two points (X, Y) = (-4, 2) and (5, 5).
Check the slope of this equation using these two points: (2 - 5)/(-4 - 5) = 1/3.
Use the general y-intercept form: Y = mX + b
Y = (1/3)X + b
Use one of our "known" points to find the y-intercept (or to verify what many of you already know-it is 10): 5 = (1/3)(5) + b or b = 10/3
Equation for this information: Y = (1/3)X + 10/3

5. (1 point) You are given the following two equations:
    W = 15 - (1/3)C
    W = 5 + (2/3)C
Determine the coordinates of the point, (C, W), where these two lines intersect. Show your work.

Answer:
At the point of intersection the C and W values are the same for the two equations. So, this implies that we can set the two equations equal to one another and solve for the value of either W or C. Thus:
15 - (1/3)C = 5 + (2/3)C
10 = C
Use this value of C and either of the equations to find the value of W:
W = 15 - (1/3)(10) = 35/3
Or, W = 5 + (2/3)(10) = 35/3 [Note: the value for W needs to be the same from either equation}
The point of intersection is: (C, W) = (10, 35/3)

6. Now, just for a few quick checks of numeracy skills:

a. (1/2 point)   6*9 = _____

b. (1/2 point)   (1/8)*(252) = _____ (take your answers out to at least one place past the decimal)

c. (1 point)   (.45)(500) = _____

d. (1 point)   19% of 230 = _____ (take your answers out to at least one place beyond the decimal)

e. (1 point)   (1/5)X + (1/3)X + (1/8)X = _____

f. (1 point)   (8/10)/(9/4) = _____

Answers:
a. 6*9 = _____54_____ This is just a simple check to see if you remember your multiplication table: especially, the 6, 7, and 8 part of the table.

b. (1/8)*(252) = _____31.5_____ This is just a quick check to see if you remember how to do simple long division.

c. (.45)(500) = _____225_____ This is just a quick check to see if you have any blatant issues with decimals.

d. 19% of 230 = _____43.7_____ (take your answers out to two places beyond the decimal) A quick check to see how you handle percentages, decimals, and a bit harder multiplication.

e. (1/5)X + (1/3)X + (1/8)X = _____(79/120)X_____ This is just a quick check to see how well you handle fractions and if you recall the concept of a common denominator.

f. (8/10)/(9/4) = _____16/45_____ Another quick check on whether you remember the "rules" for fractions.