MATH 100 **Solutions**: **QUIZ IX** (the Last Quiz) 15 November 2018

*In the following set of problems, you obtain any credit,* ***you must show your work!***

1. Find the *greatest common factor* of the numbers a = 2205 and b = 2050.

***Solution:*** *Using a factor tree: 2205 = (32)(5)(72) and 2050 = (2)(52)(41)*

*Thus the greatest common factor (or GCD) of 2205 and 2050 is* ***5****.*

1. Simplify each o+f the following:

***Solution:***



***Solution:***

1. Express the following expression without using negative exponents. Simplify if possible.

***Solution:***

1. *Simplify fully:*

***Solution:***

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***Solution:***

1. Factor *fully:*

(a) 15a9b5c3 – 25a8b3c +35a6b2c2

***Solution:***

15a9b5c3 – 25a8b3c +35a6b2c2 = **5a6b2c(3a3b3c2 – 5a2b + 7c)**

(b) Factor

***Solution:***

(c) Factor

***Solution:***

(d) Factor

***Solution:***

***7.*** A speck of dust in an electron microscope is 1.2 × 10 millimeters wide. The image is 5×106 times larger than the actual size. How many millimeters wide is the actual speck of dust?

***Solution:***

*Let the actual size be y (millimeters).*

*Then   
Hence*  ***millimeters***

***8.*** *Express in scientific notation:*

***Solution:***

Extra Credit Riddles *[1 pt each]:*

1. A hockey stick and ball together cost $50. If the stick costs $49 more than the ball, what is the cost of each?

*Answer: The hockey stick costs $ 49.50 and the ball costs $ 0.50*

1. There are two ducks in front of a duck, two ducks behind a duck and a duck in the middle. How many ducks are there? Explain.

*Answer: 3 ducks is the smallest number possible. But any odd number greater than or equal to 3 works as well.*

1. **What starts with the letter “T,” is filled with “T,” and ends in “T?”**

*Answer:* teapot

1. What is greater than God, more evil than the devil, the poor have it, the rich need it, and if you eat it, you will die?

*Answer:* *nothing*

