Math 318 Study Sheet for Test 2

1. Put the following decimals in ascending order (lowest to highest):

   (a) 980.700005 980.000005 979.89 1011.99004 1011.99

   (b) 54.00009 55.00001 54.00019 5.4999 54.3864

   (c) .04862 .04853 .0501 .03999 .7

2. **Without** actually calculating the answers to the two problems below, state how the answers to the two problems will be related to each other: (for example, you might say "The answer to the first problem is 5 times larger than the answer to the second problem")

   (a) 97.63×205.6 9763×2056

   (b) $48,268 \times 5132$ $24,134 \times 10,264$

   (c) $34.582 \times .2981$ 345.82×2.981

3. **Without** calculating any answers, circle all the problems, from the list below, that have **the same answer** as this one: 804.016×832.1

   (a) 8040.16×8321

   (b) 80.4016×8321

   (c) $804,016 \times 8321$

   (d) 402.008×1664.2

   (e) 800.016×836.1

4. Show, using fractions, why we read 8.3567 as "Eight and three thousand five hundred sixty-seven ten thousandths."

5. Show, using fractions, why we read 21.056 as "Twenty-one and fifty-six thousandths."

6. Heather claims that, if we are given a division problem, we could multiply both dividend and divisor by the same number and our quotient would be unchanged. Is Heather correct? Explain why or why not.

7. Use 10 by 10 grids to solve these problems. Make sure that it is clear how you used the grid to solve each problem.

   (a) Cathy bought a bike when it was marked 24% off. She calculated that she saved $432. How much did she pay?

   (b) Riley sold a calculator for 20% more than he had paid for it. If he sold it for $60, what was his profit?

   (c) A student noticed that they had a fever and claimed that their temperature was 10% higher than normal (98.6). His friend replied, "Dude, no way man." If the dude had been correct, how high would his temperature have been?

8. Use proportional reasoning (**not** a traditional algorithm) to solve these. Make sure your work is clear and neat and makes sense.

   (a) Sanjiv noticed that 7 students in one of her classes were wearing hats and the others were not. She reasoned that 80% of the students were hatless. How big was the class?

   (b) Travis climbed a peak on Saturday, and then climbed another on Sunday that was 13,824 feet high. He noticed that the second peak was 8% higher than the first one. How high was the first one?

9. Indicate whether each statement is true or false:

   (a) An ellipse is a special case of a circle.

   (b) The area of a parallelogram with base 8 feet and height 6 feet is 48 inches.

   (c) All trapezoids are quadrilaterals.

   (d) The sum of the interior angles of any parallelogram is 360 degrees.

   (e) In Euclidean geometry, two different lines that are both parallel to a third line never meet.

   (f) It has been proven that the paths of all the planets in our solar system are circular.

   (g) If you turn on a drinking fountain, the path followed by the water is a catenary.

   (h) The area of a triangle is the same as the rectangle whose base is half as long as that of the triangle and whose height is the same as the height of the triangle.

10. Given a picture of a parallelogram, state the formula for its area and be able to show\explain where that formula comes from.

11. Given a picture of a non-isosceles trapezoid, state the formula for its area and be able to show\explain where that formula comes from.

12. Given a picture of a triangle, state the formula for its area and be able to show\explain where that formula comes from.

13. Describe the informal proof shown in class of the fact that sum of the three interior angles of a triangle is 180 degrees.

14. Name all of the conic sections.