MATH 100

Test 1

May 13, 2008

1. Calculate $1 + 3 + 5 + \ldots + 2007$.

2. Sandy had $5\frac{2}{3}$ lbs of sugar. She gave half of it to her friend and then used $1\frac{1}{2}$ lbs to make a cake. How much sugar was left?

3. Edgar did not attain the minimum proficiency level on his state's 5th grade reading comprehension exam, although his scaled score was at the 60th percentile for all 5th graders in his state. Which of the following must be true? (Check all that apply; no explanations are required here.)

   (a) 40% of the state's 5th graders performed better than Edgar.

   (b) Edgar answered 60% of the questions correctly.

   (c) The state's minimum proficiency level for 5th graders is below the state median for 5th graders.

   (d) Less than half of the state's 5th graders are at the minimum proficiency level or higher in reading comprehension.

   (e) 5th graders must answer more than 61% of the reading comprehension questions correctly to be considered proficient in Edgar's state.

4. Let m be the month and let d be the day of your birth date. (For example, if you were born on May 13, then the values should be $m = 5$ and $d = 13$.) Find the greatest common factor and the least common multiple of 10^m and 2^d.

   - $m =$ _____.
   - $d =$ _____.
   - Greatest common factor of 10^m and 2^d:
   - Least common multiple of 10^m and 2^d:

5. Solve the following equation and classify its roots:

$$(x^2 + 4)(2x^2 + 3x + 1) = 0$$

   (a) Natural roots:

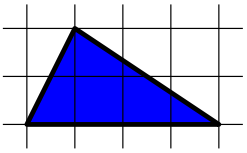
   (b) Integer roots:

   (c) Rational roots:

   (d) Irrational roots:

   (e) Real roots:

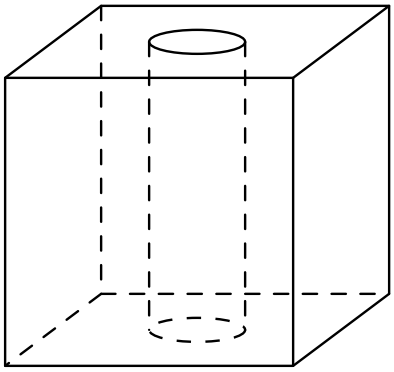
6. Find the area and perimeter of the following triangle:



   (a) Area:

   (b) Perimeter:

7. A cylindrical hole of radius 3 cm is drilled through the center of a 20 cm $\times$ 20 cm $\times$ 20 cm cube. Find the volume and the surface area of the obtained solid.



   (a) Volume:

   (b) Surface area:

8. Give an example of a problem that can be solved using proportional reasoning. Solve your problem (use proportinal reasoning).

   (a) Problem:

   (b) Your solution: