Spring 10, College Algebra I Quiz 1 Howard University Mathematics
Math 006-19 Sitaraman

Instructions:
PLEASE PROVIDE STEP BY STEP EXPLANATIONS
Time Limit 30 minutes
Please read the questions carefully before answering
Each problem 5 points unless otherwise stated.

1. Simplify the following: (a) $3^{11}3^{-15}$ (b) $\sqrt{(-5)^2}$

Soln: (a) $3^{11}3^{-15} = 3^{11-15} = 3^{-4} = \frac{1}{3^4} = \frac{1}{81}$.
(b) $\sqrt{(-5)^2} = \sqrt{25} = 5$.

2.Find the distance between the points 11.1 and -3.5 using absolute value

Soln: $d(11.1, -3.5) = |11.1 - (-3.5)| = |14.6| = 14.6$.

3.Simplify: $\frac{x^3(yz)^{-2}}{x^4yz^3}$ and write your answer with positive exponents.

Soln: $\frac{x^3(yz)^{-2}}{x^4yz^3} = \frac{x^3y^{-2}z^{-2}}{x^4yz^3} = x^{3-4}y^{-2-1}z^{-2-3} = x^{-1}y^{-3}z^{-5}$
$= \frac{1}{xy^3z^5}$ because the answer needs to have positive exponents.

4. Write the following in scientific notation: (a) 403000 (b) 0.000245

Soln:(a)$403000 = 4.03 \times 10^5$ (b) $0.000245 = 2.45 \times 10^{-4}$.

5. If three sides of a triangle are 4,6 and 10, can it be a right angled triangle? Explain answer.

Soln: No, because the squares of the two smaller sides don't add up to the square of the third side: $4^2 + 6^2 = 16 + 36 = 52$ but $10^2 = 100$.

6. Find the volume of a right circular cylinder with radius 5 cm and height 10 cm.

Soln:Volume is given by the formula $V = \pi r^2 h = 3.14(5^2)(10)$
$= 785cc$.