MATH 102: IDEAS OF MATH

WORKSHEET 3

Question 1.   (1) What is the definition of $a \mid b$ (read "a divides b")?

(2) What is the division algorithm? (Just state it)

(3) When is it that $a \nmid b$?

Question 2.   (1) $\gcd(-5, 25) =$

(2) $\gcd(-3, 7) =$

Question 3. Open overleaf and try type in the following and observe the differences.

(1)   The Pythagorean Theorem says $a^2 + b^2 = c^2$

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The Pythagorean Theorem says $$ a^2 + b^2 = c^2$$

(2) $a \mid b$
         $a \mid b $
         $a \not\mid b$
         $a \nmid b$

(3) $gcd(a,b) $
         $\gcd(a,b)$

Question 4.   (1) What is Bezout's identity? Give 2 or 3 examples of Bezout's identity.

(2) Does Bezout's identity work for the pair $(-3, 6)$? How about $(-5, -7)$?

(3) How about a triple? $(18, 3, -9)$?

(4) Quadruple? $(12, 24, -20, 4)$?

(5) Is there a pattern?

Question 5. Discuss the proof of Bezout's identity.