Name_____ _____ Math 162 Online Fall Term 1

Date_____ Unit 3 Test

Decide whether each statement is true

1. No Two prime numbers differ by 1 _____ _____.
2. There are infinitely many prime number_____ _____.
3. If a natural number is divisible by 9, then it must be also be divisible by 3_____.
4. If p and q are different primes, q is the greatest common factor and pq is their least common multiple._____.
5. If a natural number is not perfect, then, it must be abundant_____.

Answer the following:

6. Decide whether the following statements are false:
   a. There are no known odd prefect numbers
   b. Every even perfect number must end in 6 or 28
   c. Goldbach's Conjecture for the numbers 8 is illustrated by the equations 8 = 7 + 1.
7. Give a pair of twin prime between 50 and 70__ _____
8. Decide whether each number is perfect, deficient, or abundant:
   a. 36
   b. 8
   c. 28
9. Find the least common multiple of 15, 45, and 50.
10. What is the exact value of the golden ratio?
11. Consider {-4, $-\sqrt{5}$, -3/2, -0.5, $\sqrt{3}$, 4.1, 12} List the elements of the set that belong to each of the following:
    a. Natural numbers
    b. Whole numbers
    c. Integers
    d. Rational numbers
    e. Irrational numbers
    f. Real numbers
12. Match each set in ((a-d)) with the correct set builder notation description in A-D
    a. {..., -4, -3, -2, -1}
    b. {3, 4, 5, 6, ...}
    c. {1, 2, 3, 4, ...}
    d. {-12, ..., -2, -1, 0, 1, 2, ...12}
13. Convert each rational number into a repeating or terminating decimal, you may use calculator
    a. 9/20
    b. 5/12

14. Match each statement in (a)-(f) with the property that justifies it in A-F
    a. $7 \cdot (8 \cdot 5) = (7 \cdot 8) \cdot 5$_____
    b. $3x + 3y = 3(x + y)$_____
    c. $8 \cdot 1 = 1 \cdot 8 = 8$_____
    d. $7 + (6 + 9) = (6 + 9) + 7$_____
    e. $9 + (-9) = -9 + 9 = 0$_____
    f. $5 \cdot 8$ is a real number._____

    A. Distributive Property
    B. Identity Property
    C. Closure Property
    D. Commutative Property
    E. Associative Property
    F. Inverse Property

15. Convert each decimal into quotient of integers, reduced to lowest term
    a. 0.72
    b. 0.588