Math 115 Practice Test #1 (Chapters 1 & 2)

1. Compute and simplify:
   a. \( \left( \frac{3}{4} \right)^3 \)  
   b. \(-4^2\)  
   c. \(|-6|\)  
   d. \(\frac{4(-3)+(-8)}{2+(-2)}\)  
   e. \(68-5\cdot2^3\)  
   f. \(5[3(2+5)-5]\)  
   g. \(\frac{3}{4} \div \frac{6}{5}\)  
   h. \(\frac{11}{8} \div \frac{3}{6}\)

2. Simplify: \(-4(3x-5)-7\)

3. Simplify: \(\frac{1}{5}(10a-25b)\)

4. Evaluate the expression \(3(y-z)+2x\) when \(x=5, y=-1, z=-3\)

5. Name the property illustrated: \(a + b = b + a\)

6. Find the opposite of \(\frac{4}{3}\).
   Find the reciprocal of \(-7\).

7. Combine like terms: \(6x+5y-7x+3-y\)

8. Simplify: \(3(x+2)-(12-x)\)

9. The set \{\(\cdots, -3, -2, -1, 0, 1, 2, 3, \cdots\}\} is called the set of ________________.

10. Solve the given equations:
    a. \(-x+5=-2(x-1)-(x-2)\)
    b. \(0.03(m+7)=0.02(5-m)+0.03\)
    c. \(-4x=\frac{5(1-x)}{6}\)
    d. \(-2(2x-5)=-3x+7-x+3\)

11. Solve, graph on a number line and write in interval notation the given inequalities:
    \(-x-2 \geq 3x-7\)

12. Solve the formula \(2x - 3y = 11\) for \(y\).

13. Solve the formula \(A = P + PRT\) for \(R\).
14. Translate into an algebraic expression:
   a. Five more than twice a number
   b. Three times the sum of a number and two

15. If 2 is subtracted from five times a certain number, the result is 38. Find the number.

16. Find the measures of the three angles of a triangle if the second angle is twice the first angle, and the third angle is half the second angle.

17. How many liters of 25% and how many liters of 75% antibiotic solution are needed to be mixed together to get 60 liters of a 55% antibiotic solution?

18. Suppose that a board 20 ft long is cut into two pieces. Four times the length of the shorter piece is 4 ft less than three times the length of the longer piece. Find the length of each piece.

Solutions on the next page!
Solutions:

1. a. $\frac{27}{64}$  
   b. $-16$  
   c. $6$  
   d. Undefined
   e. $28$  
   f. $80$  
   g. $\frac{5}{8}$  
   h. $\frac{7}{8}$

2. $-12x + 13$

3. $2a - 5b$

4. $16$

5. Commutative property of addition

6. $-\frac{4}{3}, -\frac{1}{7}$

7. $-x + 4y + 3$

8. $4x - 6$

9. Integers

10. a. $x = \frac{-1}{2}$  
    b. $m = -1.6$  
    c. $x = \frac{-5}{19}$  
    d. All real numbers

11. $x \leq \frac{5}{4}, \ (\infty, \frac{5}{4})$

12. $y = \frac{2x - 11}{3}$

13. $R = \frac{A - P}{PT}$

14. a. $2x + 5$  
    b. $3(x + 2)$

15. The number is $8$.

16. The first angle is $45^\circ$, the second is $90^\circ$, the third is $45^\circ$.

17. 24 liters of 25% and 36 liters of 75% are needed

18. The shorter piece is 8 ft, the longer piece is 12 ft.