Mth 096 – Beginning Algebra – **Practice Exam 1**

NOTE: This exam should not be taken as a complete list of possible problems. It is merely intended to be an example of the difficulty level of the regular exam. To best utilize it as a *practice* exam, try to complete the exam without notes or distractions. Try to emulate the classroom environment as much as possible.

1. Give three examples of prime numbers.

2. List three factors of 30.

3. Factor 60 into its prime factors.

4. List two examples of rational numbers that are *not* integers.

5. Tell which set or sets each number belongs to: natural numbers (N), whole numbers (W), integers (Z), rational numbers (Q), irrational numbers (I), and real numbers (R). (Note: There may be more than one answer for each number.)

   a. $\frac{2}{3}$

   b. π

   c. 8

6. For each of the following, fill in the blank with $<, >, \leq, \geq,$ or $=$.

   a. $-3 \_\_\_\_ -5$

   b. $-|-3| \_\_\_\_ -(-3)$

   c. $-2 \_\_\_\_ -1$

7. Write $\frac{3}{4}$ as an equivalent fraction with a denominator of 20.

8. Write each phrase as an algebraic expression. Let x represent the unknown number.

   a. 3 less than a number

   b. the sum of a number and 6

   c. five more than twice a number

In the problems 9-25, perform the indicated operations.

9. $\frac{5}{3} \cdot \frac{9}{10}$

10. $5 \div \frac{2}{7}$

11. $\frac{3}{5} + \frac{2}{3}$

12. $3-\frac{1}{4}$

13. $|10|-|-6|$

14. $6-3\cdot 4$

15. $(6+4)3+1$

16. $\frac{22+3\cdot 5-1}{25-10\cdot 2+4}$

17. $22+(-3)+(-14)+5$

18. $-8-(-8)$

19. $\dfrac{6(-7)}{5-2}$

20. $3+6(2-4)$

21. $5(-2.3)$

22. $0.414-0.618$

23. $-4(-5)(-2)$

24. $-11-6+3$

25. -5^2

26. Use the distributive property to write each problem without parenthesis.

a. $5(7+8y)$

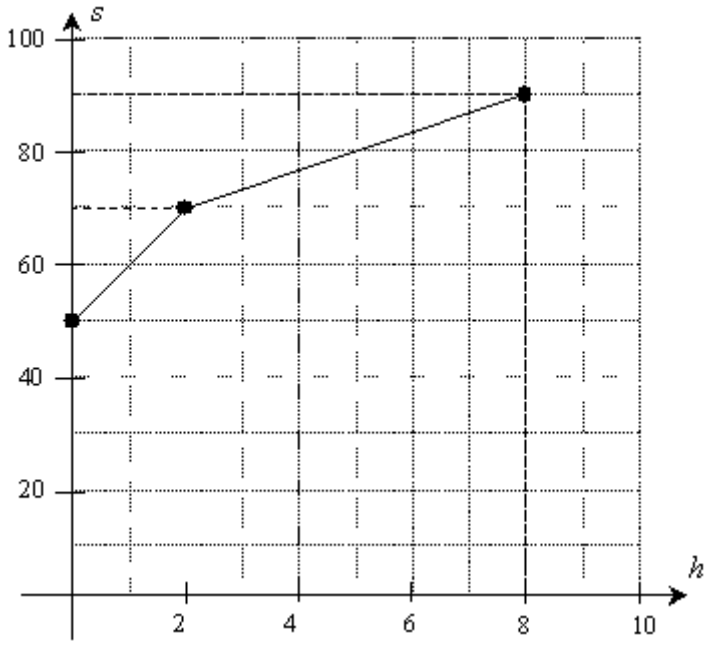
b. $-(3-2x)$

27. Use the distributive property to write each sum as a product.

a. $25x+25y$

b. $5x+20$

28. The accompanying graph illustrates the relationship between the number of hours a student studies for a math exam and the score on the exam. The horizontal axis, labeled *h*, represents the number of hours the student studied. The vertical axis, labeled *s*, represents the score on the exam.



a. Based on the graph, if a student does not study for the exam, what would the exam score be?

b. If a student studies 2 hours for the exam, how much would the exam increase?

c. Does the score increase at the same rate if the study time is increased from 0 to 2 hours as it does if the study time is increased from 6 to 8 hours?

d. Does an additional 2 hours of studying always increase the score by the same amount? Explain.