

Name \_\_\_\_\_  
Date \_\_\_\_\_

Introduction to Technical Mathematics  
Class #3B.

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**Unit Test 1A**

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**Section 1. Technical Arithmetic:** In this section, so any and all work necessary to the answer. The calculator is a good double-check, but should not be the solution to each question. Showing work for each question will increase the chances your score will be higher.

1. Simplify:  $(-17) - (-5) + (-8) - 5$  1. \_\_\_\_\_

2. Simplify:  $\frac{(-3)(+6)(-5)}{(-1)(10)}$  2. \_\_\_\_\_

3. Simplify:  $(-6)^2 + 9(3 + 2)$  3. \_\_\_\_\_

4. Simplify:  $-5^2 + 4(3 - 7)$  4. \_\_\_\_\_

5. Simplify:  $3(4^2 + 1) - 30 \div 3$  5. \_\_\_\_\_

**Section 2. Scientific Notation: Writing VERY LARGE and very small Numbers.**

6. Write in Scientific Notation:  
a. 56,000 a. \_\_\_\_\_

b. 0.000843 b. \_\_\_\_\_

7. Write in Standard Form:  
a.  $6.28 \times 10^5$  a. \_\_\_\_\_

b.  $4.652 \times 10^{-3}$  b. \_\_\_\_\_

8. Write in Proper Scientific Notation:  
a.  $425.6 \times 10^4$  a. \_\_\_\_\_

b.  $125.98 \times 10^{-5}$  b. \_\_\_\_\_

9. Multiply or Divide and Write the Answer in Scientific Notation.

a.  $(5.64 \times 10^4)(3.44 \times 10^5)$  a. \_\_\_\_\_

b.  $\frac{14.5 \times 10^9}{1.25 \times 10^{-7}}$  b. \_\_\_\_\_

**Section 3. Units of Measure – Conversions – Reductions**

10. Change 440 feet per second to miles per hour. 10. \_\_\_\_\_

11. Reduce: 55.6 mm = \_\_\_\_\_ cm 11. \_\_\_\_\_

12. Reduce 80 oz. = \_\_\_\_\_ lbs. 12. \_\_\_\_\_

13. Convert: 27 cm = \_\_\_\_\_ inches 13. \_\_\_\_\_

14. Convert: 8 kg = \_\_\_\_\_ lbs. 14. \_\_\_\_\_

15. A chemist has a container of 164.0 mL of sulfuric acid.  
Convert this volume to quarts and use the same degree of accuracy. 15. \_\_\_\_\_

**Section 4. Algebra**

16. Distribute and Combine Like Terms:

a.  $4a - (a - 3x + 2y) + (-4x + y)$  a. \_\_\_\_\_

b.  $3s - (2 - (4 - s))$

b. \_\_\_\_\_

c.  $-4(x - 4)$

c. \_\_\_\_\_

d.  $3ab(2a - 5ac)$

d. \_\_\_\_\_

e.  $2ax(3ax^2 + 5x^3)$

e. \_\_\_\_\_

17. Multiply:  $(x + 2)(3x - 5)$

17. \_\_\_\_\_

18. Multiply:  $(2x^2 - 5x - 6)(3x - 2)$

18. \_\_\_\_\_

19. Multiply:  $(x + 3)(x - 5)(x - 2)$

19. \_\_\_\_\_

20. Divide:  $\frac{2x^2 - 5x - 3}{x - 3}$

20. \_\_\_\_\_