

Name _____
Date _____

Introduction to Technical Mathematics
Class #3B.

Unit Test 1A

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. 6.28×10^5 a. _____
- b. 4.652×10^{-3} b. _____
8. Write in Proper Scientific Notation:
- a. 425.6×10^4 a. _____
- b. 125.98×10^{-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. _____