**Computational Mastery Exam General Information
*This page is part of the practice exam only.***

***Expectations:***

The Computational Mastery Exam is to address the following MTLE Basic Skills. Though there are many other mathematics basic skills required, it is not reasonable to cover them all in a single computational mastery exam.

**MTLE Basic Skills: Mathematics**

 **0011 Understand numbers and the number system.**

demonstrating fluency in computation, including operations on decimals, percents, fractions, and exponents

using number sense and different number representations to solve mathematical and real-world problems

 **0014 Understand measurement concepts.**

applying formulas to calculate perimeter, circumference, length, area, surface area, volume, and angles for two- and three-dimensional figures in mathematical and real-world situations

 Students should know basic fraction/percent equivalencies or be able to derive them. For example:

     etc.

    

 10% =  20% =  30% =  40% = etc.

***Passing Score:***

 Must meet ***all*** of the following requirements:

 1. A comprehensive score of 25 or higher.

 2. For each of the subcategories:

 1–5: four or five correct.

 6–18: ten or more correct.

 19–23: four or five correct.

 24–30: five or more correct.

 If a student has obtained a perfect score in a subcategory and has not received a passing score for the exam, then the student does not need to retake that subcategory when retaking the exam.

**Computational Mastery Exam**

1. 2. 3. 4. 







5. Based on the 2010 census, the population of Moorhead was 38,065 and of Fargo was 105,549. What is the combined population of Moorhead and Fargo in 2010?

6.  7.  8. 

9.  10.  11.  12. 

13.  14.  15.  16. 

17. Dana measured two small paper clips. The length of one paper clip measured  of an inch and the other paper clip measured  of an inch long. How much longer is the longer paper clip than the shorter paper clip?

18. What is the surface area of a ball that has a radius of  inches? Use that *π* is approximately.

19. 9 – 6.207 20. 16.78 + 24 + 0.035 21. 25.9 × 2.4 22. 2.3301 ÷ 0.9

23. Pat paid $38.18 for 9.2 gallons of gas. What was the price per gallon that Pat paid?

24. 14% of 65 25.  of 2400 26. 210% of 700

27. What percent of 48 is 12? 28. What percent of 34 is 29?

29. 70% of what number is 40?

30. After the Legacy Amendment passed and went into effect, the Minnesota Sales Tax rate was  or 6.875%. What was the final purchase price of a tablet selling for $560?

**Formula Sheet**

Note: Not all formulas necessary are listed, nor are all formulas used on this test.

**Rectangle Sphere**

 Area = *lw* Surface area = 

 Perimeter = 2*l* + 2*w* Volume = 

**Triangle Right cylinder**

Area =  Surface area = 

 Volume = 

**Right triangle** **Rectangular solid**

 Pythagorean formula:  Surface area = 2*lw* + 2*lh* + 2*wh*

 Volume = *lwh*

**Circle**

Area = 

 Circumference = 

 **Computational Mastery Exam** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Solution Sheet** Score\_\_\_\_\_\_\_\_\_\_\_\_\_

***Directions:*** Any fractions must be *simplified* to lowest terms.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Subscore\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Directions:*** All fractions must be *simplified* to lowest terms. Improper fractions must be rewritten as mixed numbers.

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 17. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Directions:*** Do *not* round any values.

19. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 20. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 21. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 23. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Subscore\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Directions:*** Do *not* round any values.

24. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 25. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 26. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

27. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 28. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 29. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Subscore\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_