

Computational Mastery Exam
Solution Sheet

Name KEY

Score _____

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

1. 195,622

2. 88,268

3. 194,166

4. $6,677 R34$ or $6,677\frac{34}{37}$

5. 143,614

Subscore _____

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

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

7. $\frac{27}{40}$

8. $9\frac{1}{14}$

9. $\frac{4}{7}$

10. $\frac{5}{18}$

11. $3\frac{5}{12}$

12. $1\frac{13}{24}$

13. $\frac{4}{9}$

14. $9\frac{4}{9}$

15. $\frac{4}{5}$

16. $\frac{4}{7}$

17. $\frac{1}{16}$

18. $38\frac{1}{2}$

Subscore _____

Directions: Do *not* round any values.

19. 2.793

20. 40.815

21. 62.16

22. 2.589

23. 4.15

Subscore _____

Directions: Do *not* round any values.

24. 9.1

25. 1,600

26. 1,470

27. 25%

28. $85\frac{5}{17}\%$

29. $57\frac{1}{7}$

30. 598.50

Subscore _____

$$\begin{array}{r}
 1. \quad \begin{array}{r}
 \overset{1}{7}0,\overset{2}{6}\overset{2}{5}8 \\
 64,372 \\
 2,083 \\
 +58,509 \\
 \hline
 195,622
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 2. \quad \begin{array}{r}
 \overset{11}{16} + \overset{9}{70} \overset{9}{70} \overset{12}{2} \\
 \cancel{+72}, \cancel{00}2 \\
 -83,734 \\
 \hline
 88,268
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 3. \quad \begin{array}{r}
 938 \\
 \times 207 \\
 \hline
 6566 \\
 +18760 \\
 \hline
 194,166
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 4. \quad \begin{array}{r}
 \overline{) 247,083} \\
 \underline{6677} R34 \\
 -222 \\
 250 \\
 \underline{-222} \\
 288 \\
 \underline{-259} \\
 293 \\
 \underline{-259} \\
 34
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 5. \quad \begin{array}{r}
 \overset{1}{1}05,\overset{11}{5}49 \\
 +38,065 \\
 \hline
 143,614
 \end{array}
 \end{array}$$

The combined population of Moorhead and Fargo in 2010 was 143,614.

$$6. \quad \frac{4}{9} + \frac{2}{9} = \frac{6}{9} = \frac{2 \cdot 3}{3 \cdot 3} = \frac{2}{3}$$

$$7. \quad \frac{3}{8} + \frac{3}{10} = \frac{3 \cdot 5}{8 \cdot 5} + \frac{3 \cdot 4}{10 \cdot 4} = \frac{15}{40} + \frac{12}{40} = \frac{27}{40}$$

$$8. \quad 3\frac{1}{2} = 3\frac{7}{14}$$

$$9. \quad \frac{6}{7} - \frac{2}{7} = \frac{4}{7}$$

$$+ 5\frac{4}{7} = +5\frac{8}{14}$$

$$10. \quad \frac{5}{6} - \frac{5}{9} = \frac{5 \cdot 3}{6 \cdot 3} - \frac{5 \cdot 2}{9 \cdot 2} = \frac{15}{18} - \frac{10}{18} = \frac{5}{18}$$

$$8\frac{15}{14} = 9\frac{1}{14}$$

$$11. \quad 7\frac{2}{3} = 7\frac{8}{12}$$

$$12. \quad 5\frac{1}{6} = 5\frac{4}{24} = 4\frac{28}{24}$$

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

$$- 3\frac{5}{8} = -3\frac{15}{24} = -3\frac{15}{24}$$

$$3\frac{5}{12}$$

$$1\frac{13}{24}$$

$$13. \quad \frac{10}{21} \times \frac{14}{15} = \frac{\overset{1}{2} \cdot \overset{1}{7}}{\overset{1}{3} \cdot \overset{1}{7}} \times \frac{\overset{1}{2} \cdot \overset{1}{7}}{\overset{1}{3} \cdot \overset{1}{5}} = \frac{2}{3} \times \frac{2}{3} = \frac{4}{9}$$

$$14. \quad 2\frac{5}{6} \times 3\frac{1}{3} = \frac{17}{\overset{5}{6}} \times \frac{10}{3} = \frac{85}{9} = 9\frac{4}{9}$$

$$15. \quad \frac{3}{8} \div \frac{15}{32} = \frac{3}{8} \times \frac{32}{15} = \frac{\overset{1}{3}}{\overset{1}{8}} \times \frac{\overset{1}{8} \cdot \overset{1}{4}}{\overset{1}{3} \cdot \overset{1}{5}} = \frac{4}{5}$$

$$16. \quad 2\frac{4}{7} \div 4\frac{1}{2} = \frac{18}{7} \div \frac{9}{2} = \frac{\overset{2}{18}}{7} \times \frac{2}{\overset{1}{9}} = \frac{4}{7}$$

$$17. \quad \frac{3}{4} - \frac{11}{16} = \frac{12}{16} - \frac{11}{16} = \frac{1}{16}$$

The longer paper clip is $\frac{1}{16}$ inch longer than the shorter paper clip.

$$18. SA = 4\pi r^2$$

$$SA = 4(3\frac{1}{2})(1\frac{3}{4})^2 = \frac{4}{1} \times \frac{22}{7} \times \frac{7}{4} \times \frac{7}{2} = \frac{77}{2} = 38\frac{1}{2}$$

The surface area of the ball is $38\frac{1}{2}$ cubic inches.

$$19. \begin{array}{r} 8 \ 9 \ 9 \\ 9.000 \\ -6.207 \\ \hline 2.793 \end{array}$$

$$20. \begin{array}{r} 16.78 \\ 24. \\ + 0.035 \\ \hline 40.815 \end{array}$$

$$21. \begin{array}{r} 25.9 \\ \times 2.4 \\ \hline 1036 \\ + 518 \\ \hline 62.16 \end{array}$$

$$22. \begin{array}{r} 2.589 \\ 0.9 \overline{) 2.3301} \\ \underline{-18} \\ 53 \\ \underline{-45} \\ 80 \\ \underline{-72} \\ 81 \\ \underline{-81} \\ 0 \end{array}$$

$$23. \begin{array}{r} 4.15 \\ 9.2 \overline{) 38.180} \\ \underline{-368} \\ 138 \\ \underline{-92} \\ 460 \\ \underline{-460} \\ 0 \end{array}$$

Pat paid \$4.15 per gallon of gasoline.

$$24. \begin{array}{r} 65 \\ \times 0.14 \\ \hline 260 \\ + 65 \\ \hline 9.10 \end{array}$$

$$25. \frac{2}{3} \times \frac{2400}{1} = 2 \times 800 = 1600$$

$$26. 210 \times 7 = 1470$$

$$27. N \times 48 = 12$$

$$N = \frac{12}{48} = \frac{1}{4} = 25\%$$

$$28. N \times 34 = 29$$

$$N = \frac{29}{34}$$

$$34 \overline{) 29.00} \begin{array}{r} .85\frac{10}{34} = 85\frac{5}{17}\% \\ \underline{-272} \\ 180 \\ \underline{-170} \\ 10 \end{array}$$

$$29. 0.7 \times N = 40$$

$$N = \frac{40}{0.7}$$

$$\begin{array}{r} 57\frac{1}{7} \\ 7 \overline{) 400} \\ \underline{35} \\ 50 \\ \underline{49} \\ 1 \end{array}$$

$$30. 560 + 560(6\frac{7}{8}\%)$$

$$= 560 + \frac{560}{1} \cdot \frac{55}{8} \cdot \frac{1}{100}$$

$$= 560 + \frac{70.55}{100}$$

$$= 560 + 38.50$$

$$= 598.50$$

$$\begin{array}{r} 55 \\ 70 \\ \hline 3850 \end{array}$$

Alternate 30. $560 + 560(0.06875)$

The final purchase price was \$598.50.