

BUTTE COLLEGE ASSESSMENT OFFICE

STUDY GUIDE FOR BASIC MATH ASSESSMENT

For placement in Whole Numbers (Math 214), Basic Math (Math 216),
Pre-Algebra (Math 217) and Beginning Algebra (Math 108)

WHOLE NUMBERS:

Adding, Subtracting, Multiplying and Dividing

Example:

ADDITION:

$$\begin{array}{r} 17 \\ +481 \\ \hline 498 \end{array}$$

SUBTRACTION:

$$\begin{array}{r} 348 \\ -321 \\ \hline 27 \end{array}$$

MULTIPLICATION:

$$\begin{array}{r} 1045 \\ \times 4 \\ \hline 4180 \end{array}$$

DIVISION:

$$4 \overline{)624} \begin{array}{l} 156 \end{array}$$

Practice:

1. $\begin{array}{r} 103 \\ +220 \\ \hline \end{array}$

3. $\begin{array}{r} 807 \\ -399 \\ \hline \end{array}$

5. $32 \times 2 =$

7. $46 \overline{)6,164}$

2. $\begin{array}{r} 503 \\ 65 \\ +411 \\ \hline \end{array}$

4. $183 - 71 =$

6. $\begin{array}{r} 346 \\ \times 54 \\ \hline \end{array}$

8. $64 \div 8 =$

DECIMALS:

Adding, Subtracting, Multiplying and Dividing.

Example:

ADDITION:

$$\begin{array}{r} 3.50 \\ 6 \\ +.87 \\ \hline 10.37 \end{array}$$

SUBTRACTION:

$$\begin{array}{r} 5.30 \\ - .48 \\ \hline 4.82 \end{array}$$

MULTIPLICATION:

$$\begin{array}{r} 1.62 \\ \times .04 \\ \hline .0648 \end{array}$$

DIVISION:

$$12.5 \overline{)3.75} \begin{array}{l} .3 \end{array}$$

Practice:

9. $\begin{array}{r} .178 \\ .1624 \\ 5.0 \\ + .07 \\ \hline \end{array}$

11. $\begin{array}{r} 7.71 \\ - 4.24 \\ \hline \end{array}$

13. $\begin{array}{r} 117.7 \\ \times 3.5 \\ \hline \end{array}$

15. $.05 \overline{)156}$

10. $\begin{array}{r} 4.1 \\ +.32 \\ \hline \end{array}$

12. $\begin{array}{r} 4.7 \\ - 2 \\ \hline \end{array}$

14. $\begin{array}{r} 34.2 \\ \times .07 \\ \hline \end{array}$

16. $54 \overline{)40.5}$

FRACTIONS:

Adding, Subtracting, Multiplying and Dividing Fractions

Addition:

Example: $\frac{5}{7} + \frac{6}{7} + \frac{3}{7} = \frac{14}{7} = 2$

$$\frac{3}{8} + \frac{1}{3} = \frac{9}{24} + \frac{8}{24} = \frac{17}{24}$$

Practice: 17. $6\frac{1}{3} + 7\frac{2}{3} =$

18. $\frac{2}{3} + \frac{3}{4} + \frac{1}{2} =$

Subtraction:

Example: $12\frac{7}{12} - 4\frac{5}{12} = 8\frac{2}{12} = 8\frac{1}{6}$

$$\frac{5}{7} - \frac{1}{2} = \frac{10}{14} - \frac{7}{14} = \frac{3}{14}$$

Practice: 19. $\frac{5}{8} - \frac{3}{8} =$

21. $\frac{3}{4} - \frac{2}{5} =$

20. $4 - \frac{2}{5} =$

22. $6\frac{2}{3} - 3\frac{1}{2} =$

Multiplication:

Example: $\frac{4}{9} \times \frac{3}{8} = \frac{12}{72} = \frac{1}{6}$

$$\frac{1}{4} \times \frac{2}{6} = \frac{2}{24} = \frac{1}{12}$$

Practice: 23. $\frac{7}{8} \times \frac{2}{3} =$

24. $6 \times \frac{7}{8} =$

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

Division:

Example: $\frac{1}{2} \div \frac{2}{3} = \frac{1}{2} \times \frac{3}{2} = \frac{3}{4}$

$$2\frac{1}{5} \div 1\frac{1}{4} = \frac{11}{5} \div \frac{5}{4} =$$

$$\frac{11}{5} \times \frac{4}{5} = \frac{44}{25} = 1\frac{19}{25}$$

Practice: 26. $5 \div \frac{9}{10} =$

27. $3\frac{1}{6} \div 2\frac{1}{3} =$

<u>Percents to Decimals:</u>	<u>Decimals to Percents</u>
Example: 25% = .25	Example: .417 = 41.7%

28. 8.8% =

30. .5 =

29. 87.3% =

31. .015 =

<u>Percents to Fractions:</u>	<u>Fractions to Percents</u>
Example: 4% = .04 = $\frac{4}{100}$ = $\frac{1}{25}$	Example: $\frac{1}{2}$ = 1 ÷ 2 = .5 2 $\sqrt{1.0}$ = .5 = 50%

32. 39%

34. $\frac{7}{8}$ =

33. 325%

35. $4\frac{3}{8}$ =

WORD PROBLEMS

Example: The heating-oil tank in Tom's house holds 175 gallons when it is full. The gauge says the tank now holds 37 gallons. How many gallons are needed to fill up the tank?

$$\begin{array}{r} 175 \\ - 37 \\ \hline 138 \end{array} \text{ gallons}$$

36. A used car can be purchased by making 24 payments of \$145 each. How much does the car cost?
37. Ron bowled 3 games. His scores were 185, 170, and 177. What is his average for the three games?
38. The base price of a car is \$6,098. The following accessories are available:
AM Radio - \$168, A/C - \$507, Power Steering - \$165, Power Brakes - \$245
What is the total price of the car with all accessories?

Example: Phillip has already used $36\frac{1}{2}$ feet of baseboard on the new room he is building. He needs $9\frac{3}{4}$ feet more to finish the job. How much baseboard will he use in all? -- $46\frac{1}{4}$ feet

39. Luis & Bobby want to see how far they can throw a softball. Luis threw the ball $402\frac{1}{2}$ feet. Bobby threw it 349 feet. How much further did Luis throw the ball?
40. A candy recipe calls for $2\frac{1}{2}$ cups of sugar. How much sugar will you need to make $\frac{2}{3}$ of a batch of candy?
41. A dress is on sale for 25% off the regular price. If the regular price is \$45, how much do you save by buying the dress on sale?

Example: Jason bought the following items:

Shirt - \$12.98, Slacks - \$28.95, Necktie - \$6.00, Sweater - \$35.20

Sales tax was \$4.16. What was the total cost of his purchases? -- \$87.29

42. Sales tax is 5 cents on the dollar. What is the total purchase price, including tax, on a \$25.75 item?
43. The bill for a pizza and drinks totals \$12.76. If Marlene and Fred want to split the cost, how much should each pay?
44. Carolyn earns \$34 for an 8-hour day. Yesterday she took 3 hours off without pay. How much money did she lose?

ANSWERS TO PRACTICE PROBLEMS

- | | | | |
|--------------------|----------------------|---------------------|----------------------|
| 1. 323 | 2. 979 | 3. 408 | 4. 112 |
| 5. 64 | 6. 18,684 | 7. 134 | 8. 8 |
| 9. 5.4104 | 10. 4.42 | 11. 3.47 | 12. 2.7 |
| 13. 411.95 | 14. 2.394 | 15. 3120 | 16. 0.75 |
| 17. 14 | 18. $1\frac{11}{12}$ | 19. $\frac{1}{4}$ | 20. $3\frac{3}{5}$ |
| 21. $\frac{7}{20}$ | 22. $3\frac{1}{6}$ | 23. $\frac{7}{12}$ | 24. $5\frac{1}{4}$ |
| 25. $9\frac{1}{6}$ | 26. $5\frac{5}{9}$ | 27. $1\frac{5}{14}$ | 28. .088 |
| 29. .873 | 30. 50% | 31. 1.5% | 32. $\frac{39}{100}$ |
| 33. $3\frac{1}{4}$ | 34. 87.5% | 35. 437.5% | 36. \$3,480 |
| 37. 177.3 | 38. \$7,183 | 39. 53.5 | 40. $1\frac{2}{3}$ |
| 41. \$11.25 | 42. \$27.04 | 43. \$6.38 | 44. \$12.75 |

BASIC MATH ASSESSMENT 60 Items 45 Minutes

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<u>TYPE OF QUESTION</u>	<u>NUMBER OF QUESTIONS</u>
WHOLE NUMBERS:	
Addition and Subtraction	2
Multiplication and Division	8
FRACTIONS:	
Addition and Subtraction	7
Multiplication and Division	6
DECIMALS & PERCENTS:	
Conversion and Subtraction	6
Multiplication and Division	6
INTERPRETATION OF DATA:	
Whole Numbers	3
Decimals and Fractions	4
PROBLEM SOLVING:	
Whole Numbers	8
Decimals	7
Fractions	3