FRACTIONS

The student will be able to:

1. **Perform basic operations with common fractions: addition, subtraction, multiplication, and division.**
   - Common fractions, such as 1/2, 2/3, and 3/4, are used on the GED Test
   - Demonstrate an understanding of the concept of fractions
     - A fraction is the part over the whole
     - Equivalent fractions may look different but have the same value (1/2 = 16/32)
     - When the numerator and the denominator are the same, the fraction equals 1
   - Read, write, and draw proper fractions, improper fractions, and mixed numbers
   - Find fractions and mixed numbers on a number line
   - Understand the relative size of commonly used fractions
     - The larger the denominator, the smaller the fraction
   - Learn strategies for comparing fractions
   - Compare and order fractions
   - Change fractions to equivalent decimals and percents
   - Reduce or simplify common fractions, improper fractions, and mixed numbers
   - Relate fraction concepts to real life: cooking, measuring, medicine, and shopping
   - Use a calculator to compute fractions and mixed numbers

2. **Apply appropriate strategies for solving fraction word problems.**
   - Read a problem several times
   - Personalize the problem
   - Draw a picture or diagram to help solve the problem
   - Eliminate extraneous information
   - Simplify the problem with easier numbers
   - Use estimation to solve problems and assess the reasonableness of the answer
   - Determine the number of steps and operations needed to solve the problem
     - Students will often stop after the first step leading them to choose the wrong answer
   - Determine if the answer makes sense

**Recommendations for teaching fractions:**
- Have students brainstorm ways fractions are used in “real life”
- Practice finding the fraction of a number. Be sure students understand that “of” means multiply. To find 2/3 of 12 you need to multiply: 2/3 x 12 = 8
- Demonstrate that multiplying 2 fractions yields a smaller answer: 1/2 x 1/2 = 1/4
- Demonstrate that dividing 2 fractions yields a bigger number: 1/2 / 1/2 = 1
- *Do not dally in fraction land. Do not let students get frustrated with too much computation. Focus on understanding and problem solving.*

**Essential Fraction Vocabulary**
**Cancel:** To find values that will divide evenly into the numerators and denominators of fractions to convert them into smaller fractions that are easier to work with.

**Denominator:** The bottom number of a fraction – The denominator indicates the total number of parts something is divided into

**Equivalent:** Fractions that are equal in value e.g. 5/10 and 6/12

**Improper Fraction:** A fraction in which the numerator is the same size or greater than the denominator

**Lowest Common Denominator:** The smallest number that the denominators of two or more fractions can be divided into

**Lowest Terms:** A fraction with a numerator and a denominator that can only be divided evenly by itself and one

**Mixed Number:** A number that contains both a whole number and a fractional amount

**Numerator:** The top number in a fraction – The numerator indicates number of parts you are focusing on

**Proper Fraction:** A fraction in which the numerator is smaller than the denominator

**Reciprocal:** The result of inverting numbers in a fraction ( 3/4 to 4/3 )

**Reduce:** To express a fraction in its lowest terms

**Simplify:** The same as reduce or change an improper fraction to a whole or mixed number
## Fractions Assessment

### Compare. Write <, >, or =.

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>(\frac{9}{10})</td>
<td>(\frac{3}{10})</td>
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<tr>
<td>2.</td>
<td>(\frac{1}{5})</td>
<td>(\frac{1}{3})</td>
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<tr>
<td>3.</td>
<td>(\frac{5}{9})</td>
<td>(\frac{2}{3})</td>
</tr>
<tr>
<td>4.</td>
<td>(\frac{1}{7})</td>
<td>(\frac{7}{7})</td>
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<tr>
<td>5.</td>
<td>(\frac{1}{3})</td>
<td>(\frac{2}{7})</td>
</tr>
<tr>
<td>6.</td>
<td>(\frac{4}{5})</td>
<td>(\frac{6}{7})</td>
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</table>

### Order the fractions from least to greatest.

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<tbody>
<tr>
<td>7.</td>
<td>(\frac{7}{8}), (\frac{1}{10}), (\frac{7}{10})</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>(\frac{6}{8}), (\frac{4}{8}), (\frac{2}{8})</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>(\frac{1}{2}), (\frac{1}{6}), (\frac{1}{7})</td>
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<tr>
<td>10.</td>
<td>(\frac{5}{6}), (\frac{3}{5}), (\frac{2}{3})</td>
<td></td>
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<tr>
<td>11.</td>
<td>(\frac{1}{10}), (\frac{9}{10}), (\frac{1}{2})</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>(\frac{1}{2}), (\frac{2}{7}), (\frac{1}{4})</td>
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### Change to a mixed or whole number.

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<tbody>
<tr>
<td>13.</td>
<td>(\frac{12}{2}) =</td>
<td>(\frac{10}{8}) =</td>
<td>(\frac{23}{9}) =</td>
</tr>
<tr>
<td>14.</td>
<td>(\frac{19}{4}) =</td>
<td>(\frac{17}{5}) =</td>
<td>(\frac{19}{3}) =</td>
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</table>

### Circle the equal fractions.

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<tbody>
<tr>
<td>21.</td>
<td>(\frac{5}{10})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>(\frac{3}{9})</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(\frac{11}{16}), (\frac{1}{2}), (\frac{12}{7}), (\frac{6}{12})</td>
<td>(\frac{15}{45}), (\frac{1}{3}), (\frac{9}{3}), (\frac{6}{9})</td>
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</table>
Write each fraction in simplest form.

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<tbody>
<tr>
<td>23.</td>
<td>24.</td>
<td>25.</td>
<td>26.</td>
<td>27.</td>
</tr>
<tr>
<td>$\frac{4}{24}$</td>
<td>$\frac{6}{16}$</td>
<td>$\frac{25}{50}$</td>
<td>$\frac{6}{12}$</td>
<td>$\frac{8}{24}$</td>
</tr>
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</table>

Write each mixed number as an improper fraction.

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<tbody>
<tr>
<td>28.</td>
<td>29.</td>
<td>30.</td>
<td>31.</td>
</tr>
<tr>
<td>$1 \frac{5}{9}$</td>
<td>$3 \frac{1}{4}$</td>
<td>$4 \frac{2}{5}$</td>
<td>$5 \frac{1}{2}$</td>
</tr>
</tbody>
</table>

Find the difference and write your answers in simplest form.

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</thead>
<tbody>
<tr>
<td>32.</td>
<td>33.</td>
<td>34.</td>
<td></td>
</tr>
<tr>
<td>$- \frac{1}{6}$</td>
<td>$- \frac{1}{2}$</td>
<td>$- \frac{3}{8}$</td>
<td></td>
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</tbody>
</table>

Add and reduce your answers to lowest terms.

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<tbody>
<tr>
<td>35.</td>
<td>36.</td>
<td>37.</td>
</tr>
<tr>
<td>$\frac{5}{6} + \frac{3}{9}$</td>
<td>$\frac{1}{2} + \frac{5}{10}$</td>
<td>$\frac{4}{3} + \frac{2}{4}$</td>
</tr>
</tbody>
</table>
Multiply. Write the answer in simplest form.

38. \( \frac{1}{2} \times \frac{2}{4} \)  
39. \( \frac{4}{5} \times \frac{5}{8} \)  
40. \( \frac{9}{10} \times \frac{5}{6} \)

Divide. Write the answer in lowest terms.

41. \( \frac{6}{7} \div \frac{2}{14} \)  
42. \( \frac{5}{6} \div \frac{2}{3} \)  
43. \( \frac{4}{7} \div \frac{2}{4} \)

44. \( 1 \frac{1}{2} \times 2 = \) ________________

45. \( 6 \div 1 \frac{1}{2} = \) ________________

46. Find \( \frac{1}{2} \) of $12.50 ________________

47. Find \( 1/3 \) of 36 ________________

48. Find \( 2/3 \) of 27 ________________
Fraction Word Problems

1. Maria worked 7 ½ hours on Friday, 8 ½ hours on Saturday and 10 ½ hours on Sunday. How many hours did she work all weekend? 
   __________

2. Maria’s check was $180.00. She plans on putting ¼ of this amount in the bank. How much money will she put in the bank? __________

3. 3 1/2 inches of rain fell on Monday. 2 1/4 inches of rain fell on Tuesday. How much more rain fell on Monday? ______________

4. 12,000 people are registered to vote. During the last election ¾ of registered voters voted. How many people voted? __________

5. John has a 12 foot long board. How many 1 ½ foot pieces can he cut? 
   __________________

6. Peri needs to put in 40 hours this week. She worked 8 ½ hours on Monday, 6 ½ hours on Tuesday, 8 hours on Wednesday and 6 1/3 hours on Thursday. How many hours does she need to work on Friday to get to 40? _________________

7. Maria needs 1 ¾ cups of flour to make one batch of oatmeal cookies. How much flour would she need if she tripled the recipe? ____________

8. Cory walks 1 ½ miles every day. How many miles does he walk in a week? ________________

DMR
Student Inventory     Fractions

Name________________________            Date____________________

Answer each question below by putting a check mark after Yes or I need more work. If you check yes, prove it by answering the question.

1.  I can find equal fractions.
   Write 2 equal fractions for 1/3 ______________
   Yes ________________          I need more work_______________

2.  I can reduce fractions to lowest terms.
   Reduce 6/8 to lowest terms._________________
   Yes__________________   I need more work_______________

3.  I can change an improper fraction to a mixed number.
   Change 15/2 to a mixed number .____________
   Yes__________________   I need more work_______________

4.  I can change a mixed number to an improper fraction.
   Change 5 ¼ to an improper fraction = _________
   Yes__________________   I need more work_______________

5.  I can order fractions.
   Order from smallest to biggest: 2/3,  5/6,   3/4 __________________
   Yes__________________   I need more work_______________

6.  I can add fractions and mixed numbers.
   1 ½ + 2/3 = ________________
   Yes____________________   I need more work_______________

7.  I can subtract fractions and mixed numbers.
   2 ¾ - 1 ½ = ________________
   Yes____________________   I need more work_______________

8.  I can multiply fractions and mixed numbers.
   2 2/5 X 4 = ________________
   Yes____________________   I need more work_______________

9.  I can divide fractions and mixed numbers.
   6 divided by ½ = ______________
   Yes____________________   I need more work_______________

10. I can answer one- step fraction word problems
    Yes____________________   I need more work_______________

11. I can answer multi-step fraction word problems.
    Yes____________________   I need more work_______________