**Foundational Skills Review: Fractions II**

Because this material is Foundational Skills review, it will not be covered in class. It is expected that you will get help outside of class if you need it. You should check your answers with the answer key posted on your instructor’s website to make sure your work is correct. **You should also do all the work without a calculator.**

**Use estimation to complete each statement with the appropriate inequality symbol: < or >**

|  |  |
| --- | --- |
| 1. $\frac{9}{5}-\frac{1}{3}\\_\\_\\_\\_\\_\\_\\_1$
 | 1. $\frac{2}{5}+\frac{1}{3}\\_\\_\\_\\_\\_\\_\\_1$
 |
| 1. $\frac{17}{6}+\frac{2}{3}\\_\\_\\_\\_\\_\\_\\_3$
 | 1. $2\frac{1}{4}-\frac{1}{7}\\_\\_\\_\\_\\_\\_\\_2$
 |

1. Select one of the problems from above and explain your estimation strategy.

**Estimation with Multiplication:** Remember that multiplying by a fraction like is the same as “taking half” of something or dividing by two. Based on this idea, estimate the following values:

|  |  |  |
| --- | --- | --- |
| 1.
 | 1.
 | 1.
 |

Another important concept to remember in estimation, is the difference between multiplying by a number less than 1 compared to multiplying by a number greater than 1.

* Multiplying by a number less than 1 results in a smaller number because the product is a fraction of the original:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

* Multiplying by a number greater than 1 gives a product larger than the original.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

This can be very useful in using estimation to check if answers are reasonable.

1. What is the result of multiplying a number by a fraction that is equal to 1? (Example: )

**Fill in the blanks with the appropriate symbol: < , >, =.**

|  |  |  |
| --- | --- | --- |
| 1.
 | 1.
 | 1.
 |
| 1.
 | 1.
 | 1.
 |

**Multiplication and Division of Fractions**

Internet resources on multiplication of fractions:

* Multiplying Mixed Numbers: <http://www.khanacademy.org/video/multiplying--mixed-numbers?playlist=Developmental%20Math>
* Multiplying fractions and mixed numbers: <http://www.khanacademy.org/video/multiplying-fractions-and-mixed-numbers?playlist=Developmental%20Math>

**#16-20. Each problem below gives a multiplication problem. Use estimation to select the best option: greater than, less than, or equal to the first number in the problem. Circle one of the three choices that are given.**

|  |  |  |
| --- | --- | --- |
| 1.
 | 1.
 | 1.

  |
| > | < | = | > | < | = | > | < | = |
| 1.
 | 1.
 |  |
| < 8 | > 8 | = 8 | > | < | = |

**#16-20. Now go back and do the actual calculation for each problem.**

Internet resources for division of fractions:

* Reciprocals: <http://www.khanacademy.org/video/reciprocal-of-a-mixed-number?playlist=Developmental%20Math>
* Dividing fractions: <http://www.khanacademy.org/video/dividing-fractions?playlist=Developmental%20Math>
* Dividing mixed numbers: <http://www.khanacademy.org/video/dividing-mixed-numbers?playlist=Developmental%20Math>

**#21-23. Write the reciprocals of the numbers.**

|  |  |  |
| --- | --- | --- |
| 1. 10

Reciprocal:  | 1.

Reciprocal:  | 1.

Reciprocal:  |

**#24-31. Perform the division as indicated.**

|  |  |  |
| --- | --- | --- |
| 1.
 | 1.
 | 1.
 |
| 1.
 | 1.
 |  |
| A compound fraction is a fraction that contains another fraction. While they look very complicated, compound fractions can be simplified by rewriting them as division problems. Remember that a fraction bar is a division symbol. Example:The compound fraction:can be rewritten as: . |
| 1.
 | 1.
 | 1.
 |

**The following information will be used in your next class.**

In a fraction, common factors in the numerator and denominator divide to make 1:

Example:  is the same as 

Example:  *Note: 27 and 18 have a common factor of 9 which divides out.*

When multiplying fractions, common factors in the numerators and denominators can be removed before multiplying.

|  |  |
| --- | --- |
| Start with a multiplication problem |  |
| *6 can be broken into factors of 2 and 3* |  |
| *The common factors of 3 in the numerator and denominator divide to make 1 and are removed. This is sometimes called “canceling”.*  |  |
| *Multiply the remaining numbers in the fraction (2x2) and (5x1)* |  |

**Practice**

Find factors in the numerator and denominator that can be “canceled” before multiplying. Then multiply the fractions. Show your work.

|  |  |
| --- | --- |
| 1.
 | 1.
 |