

Name: _____

Points: _____

1. Adding and Subtracting Rational Expressions

a. Add. If possible simplify your answer.

LCD= _____

$$\frac{a-2}{a-4} + \frac{2a^2-15a+12}{a^2-16}$$

b. Subtract. If possible simplify your answer.

LCD= _____

$$\frac{y}{y^2+10y+25} - \frac{4-y}{y^2+6y+5}$$

c. Add. If possible simplify your answer.

LCD= _____

$$\frac{9x+2}{3x^2-2x-8} + \frac{7}{3x^2+x-4}$$

2. Complex Fractions

Simplify.

a. $\frac{1 - \frac{x}{w}}{\frac{x^2}{w^2} - 1}$ LCD= _____

b. $\frac{\frac{2}{x} - \frac{x}{2}}{\frac{5}{x^2} - 9}$ LCD= _____

c. $\frac{\frac{2}{a+2} + \frac{6}{a+7}}{\frac{4a+13}{a^2+9a+14}}$ LCD= _____

Schwartzman (1994) defines **Fractions**: "From Latin word 'fractus', past participle of the word frangere 'to break' which is the native English conjugate. The Indo-European root is 'bhreg'- of the same meaning. Related borrowings from the Latin includes 'fragile, breakable, diffraction, (breaking up into colors) and fragment.' A fraction is literally a piece broken off something. In fact, in the 16th century English mathematics books referred to fractions as 'broken number'."

3. Fractional Equations

a. What is the difference between $\frac{2c}{2c-1} + \frac{1}{c}$ and $\frac{2c}{2c-1} + \frac{1}{c} = \frac{1}{2c-1}$?



The Babylonians, who lived in the area now known as Iraq, were intensely interested in watching the stars. From these observations, they noticed patterns and deduced that a year – a repetitive pattern with changes in seasons – consisted of 360 days. From this came the idea of fractions, as a year could be divided into days, and days could be multiplied into a year. The use of fractions dates from around 3000 B.C. (Smith, 1958).

b. Solve. $\frac{2c}{2c-1} + \frac{1}{c} = \frac{1}{2c-1}$

LCD= _____ $c \neq$ _____

c. Solve. $\frac{2k}{k-3} + \frac{6-2k}{k^2-9} = \frac{k}{k+3}$

LCD= _____ $k \neq$ _____

d. Solve. $\frac{9}{y^2+7y+10} + \frac{3}{y+5} = \frac{5}{y+2}$

LCD= _____ $y \neq$ _____

References:

Smith, D.E. (1958). *History of mathematics*. Vol. 1. New York, NY: Dover Publications

Swartzman, S. (1994). *The words of mathematics: An etymological dictionary of mathematical terms used in English*. USA: The Mathematical Association of America.