Subtracting Fractions Practice

Name: _____ Date: _____

Question 1

Subtract the fractions and simplify the final result if possible

I. $\frac{2}{3} - \frac{2}{7} =$

II. $\frac{3}{11} - \frac{4}{33} =$

III. $\frac{7}{8} - \frac{6}{8} =$

IV. $\frac{32}{32} - \frac{5}{24} =$

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V. $\frac{5}{15} - \frac{5}{25} =$

VI. $\frac{105}{27} - \frac{94}{36} =$

VII. $5 - \frac{9}{5} =$

VIII. $\frac{5}{3} - \frac{7}{8} =$

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Question 2

Subtract the fractions and simplify the final result if possible
(prime factorization will be required to find the least common denominator)
(long division will be required to determine the amount to multiply each fraction by)

I. $\frac{18}{32} - \frac{8}{53} =$

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II. $\frac{51}{102} - \frac{9}{82} =$

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III. $\frac{32}{23} - \frac{1}{22} =$

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Name: **Key** Date: _____

Question 1

Subtract the fractions and simplify the final result if possible

I. $\frac{2}{3} - \frac{2}{7} = \frac{8}{21}$

$3: \overset{x1}{3}, \overset{x2}{6}, \overset{x3}{9}, \overset{x4}{12}, \overset{x5}{15}, \overset{x6}{18}, \overset{x7}{21}$

$7: \overset{x1}{7}, \overset{x2}{14}, \overset{x3}{21}$

LCM: 21

$\frac{7}{7} \cdot \frac{2}{3} - \frac{2}{7} \cdot \frac{3}{3} = \frac{14}{21} - \frac{6}{21} = \frac{8}{21}$

II. $\frac{3}{11} - \frac{4}{33} = \frac{5}{33}$

$11: \overset{x1}{11}, \overset{x2}{22}, \overset{x3}{33}$

$33: \overset{x1}{33}$

LCM: 33

$\frac{3}{3} \cdot \frac{3}{11} - \frac{4}{33} \cdot \frac{1}{1} = \frac{9}{33} - \frac{4}{33} = \frac{5}{33}$

III. $\frac{7}{8} - \frac{6}{8} = \frac{1}{8}$

$\frac{7}{8} - \frac{6}{8} = \frac{1}{8}$

IV. $\frac{32}{32} - \frac{5}{24} = \frac{19}{24}$

$24: \overset{x1}{24}, \overset{x2}{48}, \overset{x3}{72}, \overset{x4}{96}$

$32: \overset{x1}{32}, \overset{x2}{64}, \overset{x3}{96}$

LCM: 96

$\frac{3}{3} \cdot \frac{32}{32} - \frac{5}{24} \cdot \frac{4}{4} = \frac{96}{96} - \frac{20}{96} = \frac{76}{96} \xrightarrow{\text{Simplify}} \frac{19}{24}$

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V. $\frac{5}{15} - \frac{5}{25} = \frac{2}{15}$

$15: \overset{x1}{15}, \overset{x2}{30}, \overset{x3}{45}, \overset{x4}{60}, \overset{x5}{75}$

$25: \overset{x1}{25}, \overset{x2}{50}, \overset{x3}{75}$

LCM: 75

$\frac{5}{5} \cdot \frac{5}{15} - \frac{5}{25} \cdot \frac{3}{3} = \frac{25}{75} - \frac{15}{75} = \frac{10}{75} \xrightarrow{\text{Simplify}} \frac{2}{15}$

VI. $\frac{105}{27} - \frac{94}{36} = \frac{23}{18}$

$27: \overset{x1}{27}, \overset{x2}{54}, \overset{x3}{81}, \overset{x4}{108}$

$36: \overset{x1}{36}, \overset{x2}{72}, \overset{x3}{108}$

LCM: 108

$\frac{4}{4} \cdot \frac{105}{27} - \frac{94}{36} \cdot \frac{3}{3} = \frac{420}{108} - \frac{282}{108} = \frac{138}{108} \xrightarrow{\text{Simplify}} \frac{23}{18}$

VII. $5 - \frac{9}{5} = \frac{16}{5}$

$1: \overset{x1}{1}, \overset{x2}{2}, \overset{x3}{3}, \overset{x4}{4}, \overset{x5}{5}$

$5: \overset{x1}{5}$

LCM: 5

$\frac{5}{5} \cdot \frac{5}{1} - \frac{9}{5} \cdot \frac{1}{1} = \frac{25}{5} - \frac{9}{5} = \frac{16}{5}$ OR $3\frac{1}{5}$

VIII. $\frac{5}{3} - \frac{7}{8} = \frac{19}{24}$

$3: \overset{x1}{3}, \overset{x2}{6}, \overset{x3}{9}, \overset{x4}{12}, \overset{x5}{15}, \overset{x6}{18}, \overset{x7}{21}, \overset{x8}{24}$

$8: \overset{x1}{8}, \overset{x2}{16}, \overset{x3}{24}$

LCM: 24

$\frac{8}{8} \cdot \frac{5}{3} - \frac{7}{8} \cdot \frac{3}{3} = \frac{40}{24} - \frac{21}{24} = \frac{19}{24}$

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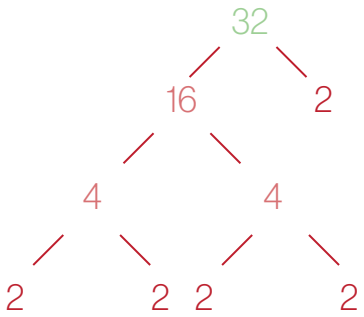
Question 2

Subtract the fractions and simplify the final result if possible
(prime factorization will be required to find the least common denominator)
(long division will be required to determine the amount to multiply each fraction by)

I. $\frac{18}{32} - \frac{8}{53} = \frac{349}{848}$

prime number

53



Prime Factorizartion $32 : 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \longrightarrow 2^5 \longrightarrow 2^5$

Prime Factorizartion $53 : 53 \longrightarrow 53 \longrightarrow 53$

LCM : $2^5 \cdot 53 = 1{,}696$

$$\begin{array}{r} 0053. \\ 32 \overline{)\,1{,}696.} \\ -160\downarrow \\ \hline 96 \\ -\ 96 \\ \hline 0 \end{array} \qquad \begin{array}{r} 0032. \\ 53 \overline{)\,1{,}696.} \\ -159\downarrow \\ \hline 106 \\ -106 \\ \hline 0 \end{array}$$

$$\frac{53}{53} \cdot \frac{18}{32} - \frac{8}{53} \cdot \frac{32}{32} = \frac{954}{1{,}696} - \frac{256}{1{,}696} = \frac{698}{1{,}696} \xrightarrow{\text{Simplify}} \frac{349}{848}$$

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ll. $\frac{51}{102} - \frac{9}{82} = \frac{16}{41}$

Prime Factorizartion $82 : 41 \cdot 2 \longrightarrow 41 \cdot 2 \longrightarrow 41 \cdot 2$

Prime Factorizartion $102 : 17 \cdot 2 \cdot 3 \longrightarrow 17 \cdot 2 \cdot 3 \longrightarrow 17 \cdot 2 \cdot 3$

LCM : $2 \cdot 3 \cdot 17 \cdot 41 = 4{,}182$

$$\begin{array}{r} 0051. \\ 82\overline{)\,4{,}182.} \\ -410\downarrow \\ \hline 82 \\ -\ 82 \\ \hline 0 \end{array} \qquad \begin{array}{r} 0041. \\ 102\overline{)\,4{,}182.} \\ -408\downarrow \\ \hline 102 \\ -102 \\ \hline 0 \end{array}$$

$$\frac{41}{41} \cdot \frac{51}{102} - \frac{9}{82} \cdot \frac{51}{51} = \frac{2{,}091}{4{,}182} - \frac{459}{4{,}182} = \frac{1{,}632}{4{,}182} \xrightarrow{\text{Simplify}} \frac{16}{41}$$

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III. $\frac{32}{23} - \frac{1}{22} = \frac{681}{506}$

prime number

23

Prime Factorizartion $22 : 2 \cdot 11 \longrightarrow 2 \cdot 11 \longrightarrow 2 \cdot 11$

Prime Factorizartion $23 : 23 \longrightarrow 23 \longrightarrow 23$

LCM : $2 \cdot 11 \cdot 23 = 506$

$$\begin{array}{r} 023. \\ 22\overline{)506.} \\ -44\downarrow \\ \hline 66 \\ -\ 66 \\ \hline 0 \end{array} \qquad \begin{array}{r} 022. \\ 23\overline{)506.} \\ -46\downarrow \\ \hline 46 \\ -\ 46 \\ \hline 0 \end{array}$$

$$\frac{22}{22} \cdot \frac{32}{23} - \frac{1}{22} \cdot \frac{23}{23} = \frac{704}{506} - \frac{23}{506} = \frac{681}{506} \text{ OR } 1\frac{175}{506}$$