

Exercises for the Arithmetic of Fractions

Exercise Set I.

(I.1) If $\frac{7}{12} - \frac{3}{5}$ is written in its simplest form as $\frac{-a}{10b+c}$, where a, b , and c are digits, then

$a = ?$

$b = ?$

$c = ?$ [Solution](#)

(I.2) If $\frac{7}{11} - \frac{3}{5}$ is written in its simplest form as $\frac{a}{10b+c}$, where a, b , and c are digits, then $a = ?$ $b = ?$

$c = ?$ [Solution](#)

(I.3) If $\frac{8}{13} - \frac{3}{5}$ is written in its simplest form as $\frac{a}{10b+c}$, where a, b , and c are digits, then $a = ?$ $b = ?$

$c = ?$ [Solution](#)

(I.4) If $\frac{8}{9} - \frac{6}{7}$ is written in its simplest form as $\frac{a}{10b+c}$, where a, b , and c are digits, then $a = ?$ $b = ?$

$c = ?$ [Solution](#)

(I.5) If $\frac{5}{7} - \frac{3}{5}$ is written in its simplest form as $\frac{a}{10b+c}$, where a, b , and c are digits, then

$a = ?$

$b = ?$

$c = ?$ [Solution](#)

(I.6) If $\frac{8}{9} - \frac{7}{8}$ is written in its simplest form as $\frac{a}{10b+c}$, where a, b , and c are digits, then $a = ?$ $b = ?$
 $c = ?$ **Solution**

(I.7) If $\frac{1}{18} - \frac{1}{19}$ is written in its simplest form as $\frac{1}{100a+10b+c}$, where a, b , and c are digits, then $a = ?$
 $b = ?$ $c = ?$ **Solution**

Exercise Set II.

(II.1) If $\frac{7}{12} + \frac{3}{5}$ is written in its simplest form as $\frac{10a + b}{10c + d}$, where $a, b, c,$ and d are digits, then $a = ? b = ?$
 $c = ?$ $d = ?$ **Solution**

(II.2) If $\frac{7}{11} + \frac{3}{5}$ is written in its simplest form as $\frac{10a + b}{10c + d}$, where $a, b, c,$ and d are digits, then $a = ? b = ?$
 $c = ?$ $d = ?$ **Solution**

(II.3) If $\frac{8}{13} + \frac{3}{5}$ is written in its simplest form as $\frac{10a + b}{10c + d}$, where $a, b, c,$ and d are digits, then $a = ? b = ?$
 $c = ?$ $d = ?$ **Solution**

(II.4) If $\frac{8}{9} + \frac{6}{7}$ is written in its simplest form as $\frac{100a + 10b + c}{10d + e}$, where $a, b,$ and c are digits, then $a = ?$
 $b = ?$ $c = ?$ $d = ?$ $e = ?$ **Solution**

(II.5) If $\frac{5}{7} + \frac{3}{5}$ is written in its simplest form as $\frac{10a + b}{10c + d}$, where $a, b,$ and c are digits, then $a = ? b = ?$
 $c = ?$ $d = ?$ **Solution**

(II.6) If $\frac{8}{9} + \frac{7}{8}$ is written in its simplest form as $\frac{100a + 10b + c}{10d + e}$, where $a, b,$ and c are digits, then $a = ?$
 $b = ?$ $c = ?$ $d = ?$ $e = ?$ **Solution**

(II.7)

If $\frac{1}{18} + \frac{1}{19}$ is written in its simplest form as $\frac{10a + b}{100c + 10d + e}$, where a, b , and c are digits, then

 $a = ?$ $b = ?$ $c = ?$ $d = ?$ $e = ?$ [Solution](#)

Exercise Set III.

(III.1) If $\frac{7}{12} + \frac{3}{5} - \frac{1}{3}$ is written in its simplest form as $\frac{10a + b}{10c + d}$, where a, b, c , and d are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ [Solution](#)

(III.2) If $\frac{7}{11} + \frac{3}{5} - \frac{1}{7}$ is written in its simplest form as $\frac{100a + 10b + c}{100d + 10e + f}$, where a, b, c, d, e , and f are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ $e = ?$ $f = ?$ [Solution](#)

(III.3) If $\frac{8}{13} + \frac{3}{5} - \frac{1}{7}$ is written in its simplest form as $\frac{100a + 10b + c}{100d + 10e + f}$, where a, b, c, d, e , and f are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ $e = ?$ $f = ?$ [Solution](#)

(III.4) If $\frac{8}{9} + \frac{6}{7} - \frac{1}{6}$ is written in its simplest form as $\frac{100a + 10b + c}{100d + 10e + f}$, where a, b, c, d, e , and f are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ $e = ?$ $f = ?$ [Solution](#)

(III.5) If $\frac{5}{7} + \frac{3}{5} - \frac{2}{3}$ is written in its simplest form as $\frac{10a + b}{100c + 10d + e}$, where a, b, c, d , and e are digits,

then

$$a =? \quad b =? \quad c =? \quad d =? \quad e =? \text{ Solution}$$

(III.6) If $\frac{8}{9} + \frac{7}{8} - \frac{9}{7}$ is written in its simplest form as $\frac{100a + 10b + c}{100d + 10e + f}$, where $a, b, c, d, e,$ and f are digits, then

$$a =? \quad b =? \quad c =? \quad d =? \quad e =? \quad f =? \text{ Solution}$$

(III.7) If $\frac{1}{18} + \frac{1}{19} - \frac{1}{17}$ is written in its simplest form as $\frac{100a + 10b + c}{1000d + 100e + 10f + g}$, where $a, b, c, d, e, f,$ and g are digits, then

$$a =? \quad b =? \quad c =? \quad d =? \quad e =? \quad f =? \text{ Solution}$$

Exercise Set IV.

(IV.1) If $\frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}}$ is written in its simplest form as $\frac{10a + b}{10c + d}$, where a, b, c , and d are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ [Solution](#)

(IV.2) If $\frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}}$ is written in its simplest form as $\frac{a}{10b + c}$, where a, b , and c are digits, then

$a = ?$ $b = ?$ $c = ?$ [Solution](#)

(IV.3) If $\frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}}$ is written in its simplest form as $\frac{100a + 10b + c}{100d + 10e + f}$, where a, b, c, d, e , and f are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ $e = ?$ $f = ?$ [Solution](#)

(IV.4) If $\frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}}$ is written in its simplest form as $\frac{a}{100b + 10c + d}$, where a, b, c , and d are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ [Solution](#)

(IV.5) If $\frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}}$ is written in its simplest form as $-\frac{10a + b}{10c + d}$, where a, b, c , and d are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ [Solution](#)

(IV.6) If $\frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}}$ is written in its simplest form as $\frac{100a + 10b + c}{1000d + 100e + 10f + g}$, where a, b, c, d, e, f , and g are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ $e = ?$ $f = ?$ $g = ?$ [Solution](#)

(IV.7) If $\frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}}$ is written in its simplest form as $\frac{1000a + 100b + 10c + d}{1000e + 100f + 10g + h}$, where a, b, c, d, e, f, g , and h are digits, then

$a = ?$ $b = ?$ $c = ?$ $d = ?$ $e = ?$ $f = ?$ $g = ?$ $h = ?$ [Solution](#)

Solution Set I.

(I.1) $\frac{7}{12} - \frac{3}{5} =$

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Solution Set I.

(I.1) $\frac{7}{12} - \frac{3}{5} =$

$$\frac{7}{12} \left(\frac{5}{5}\right) - \frac{3}{5} \left(\frac{12}{12}\right) =$$

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Solution Set I.

$$(I.1) \quad \frac{7}{12} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) - \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 - 36}{60} =$$

$$\frac{-1}{60} =$$

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[Back to Questions](#)**Solution Set I.**

$$(I.1) \quad \frac{7}{12} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) - \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 - 36}{60} =$$

$$\frac{-1}{60} =$$

$$\frac{-1}{10(6) + 0}, \text{ so}$$

$$a =$$

[Back to Questions](#)**Solution Set I.**

$$(I.1) \quad \frac{7}{12} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) - \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 - 36}{60} =$$

$$\frac{-1}{60} =$$

$$\frac{-1}{10(6) + 0}, \text{ so}$$

$$a = 1$$

$$b =$$

[Back to Questions](#)**Solution Set I.**

$$(I.1) \quad \frac{7}{12} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) - \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 - 36}{60} =$$

$$\frac{-1}{60} =$$

$$\frac{-1}{10(6) + 0}, \text{ so}$$

$$a = 1$$

$$b = 6$$

$$c =$$

[Back to Questions](#)**Solution Set I.**

$$(I.1) \quad \frac{7}{12} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) - \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 - 36}{60} =$$

$$\frac{-1}{60} =$$

$$\frac{-1}{10(6) + 0}, \text{ so}$$

$$a = 1$$

$$b = 6$$

$$c = 0$$

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$$(I.2) \quad \frac{7}{11} - \frac{3}{5} =$$

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$$(I.2) \quad \frac{7}{11} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) - \frac{3}{5} \left(\frac{11}{11} \right) =$$

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$$(I.2) \quad \frac{7}{11} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) - \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 - 33}{55} = \frac{2}{55} =$$

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$$(I.2) \quad \frac{7}{11} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) - \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 - 33}{55} = \frac{2}{55} = \frac{2}{10(5) + 5}, \text{ so}$$

$$a =$$

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$$(I.2) \quad \frac{7}{11} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) - \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 - 33}{55} = \frac{2}{55} = \frac{2}{10(5) + 5}, \text{ so}$$

$$a = 2$$

$$b =$$

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$$(I.2) \quad \frac{7}{11} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) - \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 - 33}{55} = \frac{2}{55} = \frac{2}{10(5) + 5}, \text{ so}$$

$$a = 2$$

$$b = 5$$

$$c =$$

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$$(I.2) \quad \frac{7}{11} - \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) - \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 - 33}{55} = \frac{2}{55} = \frac{2}{10(5) + 5}, \text{ so}$$

$$a = 2$$

$$b = 5$$

$$c = 5$$

$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

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$$\mathbf{(I.3)} \quad \frac{8}{13} - \frac{3}{5} =$$
$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

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$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} - \frac{13 \times 3}{13 \times 5} =$$

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$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} - \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} - \frac{39}{65} =$$

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$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} - \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} - \frac{39}{65} =$$

$$\frac{1}{65} =$$

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$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} - \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} - \frac{39}{65} =$$

$$\frac{1}{65} =$$

$$\frac{1}{10(6) + 5}, \text{ so}$$

$$a =$$

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$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} - \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} - \frac{39}{65} =$$

$$\frac{1}{65} =$$

$$\frac{1}{10(6) + 5}, \text{ so}$$

$$a = 1$$

$$b =$$

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$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} - \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} - \frac{39}{65} =$$

$$\frac{1}{65} =$$

$$\frac{1}{10(6) + 5}, \text{ so}$$

$$a = 1$$

$$b = 6$$

$$c =$$

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$$(I.3) \quad \frac{8}{13} - \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) - \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} - \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} - \frac{39}{65} =$$

$$\frac{1}{65} =$$

$$\frac{1}{10(6) + 5}, \text{ so}$$

$$a = 1$$

$$b = 6$$

$$c = 5$$

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$$(I.4) \quad \frac{8}{9} - \frac{6}{7} =$$

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$$(I.4) \quad \frac{8}{9} - \frac{6}{7} =$$

$$\frac{8 \times 7 - 6 \times 9}{9 \times 7} =$$

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$$(I.4) \quad \frac{8}{9} - \frac{6}{7} =$$

$$\frac{8 \times 7 - 6 \times 9}{9 \times 7} =$$

$$\frac{56 - 54}{63} =$$

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$$(I.4) \quad \frac{8}{9} - \frac{6}{7} =$$

$$\frac{8 \times 7 - 6 \times 9}{9 \times 7} =$$

$$\frac{56 - 54}{63} = \frac{2}{6(10) + 3}, \text{ so}$$

$$a =$$

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$$(I.4) \quad \frac{8}{9} - \frac{6}{7} =$$

$$\frac{8 \times 7 - 6 \times 9}{9 \times 7} =$$

$$\frac{56 - 54}{63} = \frac{2}{6(10) + 3}, \text{ so}$$

$$a = 2$$

$$b =$$

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$$(I.4) \quad \frac{8}{9} - \frac{6}{7} =$$

$$\frac{8 \times 7 - 6 \times 9}{9 \times 7} =$$

$$\frac{56 - 54}{63} = \frac{2}{6(10) + 3}, \text{ so}$$

$$a = 2$$

$$b = 6$$

$$c =$$

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$$(I.4) \quad \frac{8}{9} - \frac{6}{7} =$$

$$\frac{8 \times 7 - 6 \times 9}{9 \times 7} =$$

$$\frac{56 - 54}{63} = \frac{2}{6(10) + 3}, \text{ so}$$

$$a = 2$$

$$b = 6$$

$$c = 3$$

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$$(I.5) \quad \frac{5}{7} - \frac{3}{5} =$$

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$$(I.5) \quad \frac{5}{7} - \frac{3}{5} =$$

$$\frac{25 - 21}{35} =$$

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$$(I.5) \quad \frac{5}{7} - \frac{3}{5} =$$

$$\frac{25 - 21}{35} =$$

$$\frac{4}{35} =$$

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$$(I.5) \quad \frac{5}{7} - \frac{3}{5} =$$

$$\frac{25 - 21}{35} =$$

$$\frac{4}{35} =$$

$$\frac{4}{3(10) + 5}$$

$$a =$$

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$$(I.5) \quad \frac{5}{7} - \frac{3}{5} =$$

$$\frac{25 - 21}{35} =$$

$$\frac{4}{35} =$$

$$\frac{4}{3(10) + 5}$$

$$a = 4$$

$$b =$$

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$$(I.5) \quad \frac{5}{7} - \frac{3}{5} =$$

$$\frac{25 - 21}{35} =$$

$$\frac{4}{35} =$$

$$\frac{4}{3(10) + 5}$$

$$a = 4$$

$$b = 3$$

$$c =$$

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$$(I.5) \quad \frac{5}{7} - \frac{3}{5} =$$

$$\frac{25 - 21}{35} =$$

$$\frac{4}{35} =$$

$$\frac{4}{3(10) + 5}$$

$$a = 4$$

$$b = 3$$

$$c = 5$$

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$$(I.6) \quad \frac{8}{9} - \frac{7}{8} =$$

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$$(I.6) \quad \frac{8}{9} - \frac{7}{8} =$$

$$\frac{8(8) - 7(9)}{9(8)} =$$

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$$(I.6) \quad \frac{8}{9} - \frac{7}{8} =$$

$$\frac{8(8) - 7(9)}{9(8)} =$$

$$\frac{1}{72} =$$

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$$(I.6) \quad \frac{8}{9} - \frac{7}{8} =$$

$$\frac{8(8) - 7(9)}{9(8)} =$$

$$\frac{1}{72} =$$

$$\frac{1}{10(7) + 2}$$

$$a =$$

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$$(I.6) \quad \frac{8}{9} - \frac{7}{8} =$$

$$\frac{8(8) - 7(9)}{9(8)} =$$

$$\frac{1}{72} =$$

$$\frac{1}{10(7) + 2}$$

$$a = 1$$

$$b =$$

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$$(I.6) \quad \frac{8}{9} - \frac{7}{8} =$$

$$\frac{8(8) - 7(9)}{9(8)} =$$

$$\frac{1}{72} =$$

$$\frac{1}{10(7) + 2}$$

$$a = 1$$

$$b = 7$$

$$c =$$

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$$(I.6) \quad \frac{8}{9} - \frac{7}{8} =$$

$$\frac{8(8) - 7(9)}{9(8)} =$$

$$\frac{1}{72} =$$

$$\frac{1}{10(7) + 2}$$

$$a = 1$$

$$b = 7$$

$$c = 2$$

$$(I.7) \quad \frac{1}{18} - \frac{1}{19} =$$

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$$(I.7) \quad \frac{1}{18} - \frac{1}{19} =$$

$$\frac{19 - 18}{19(18)} =$$

$$\frac{1}{342} =$$

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$$(I.7) \quad \frac{1}{18} - \frac{1}{19} =$$

$$\frac{19 - 18}{19(18)} =$$

$$\frac{1}{342} =$$

$$\frac{1}{100(3) + 4(10) + 2}$$

$$a =$$

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$$(I.7) \quad \frac{1}{18} - \frac{1}{19} =$$

$$\frac{19 - 18}{19(18)} =$$

$$\frac{1}{342} =$$

$$\frac{1}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b =$$

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$$(I.7) \quad \frac{1}{18} - \frac{1}{19} =$$

$$\frac{19 - 18}{19(18)} =$$

$$\frac{1}{342} =$$

$$\frac{1}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b = 4$$

$$c =$$

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$$(I.7) \quad \frac{1}{18} - \frac{1}{19} =$$

$$\frac{19 - 18}{19(18)} =$$

$$\frac{1}{342} =$$

$$\frac{1}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b = 4$$

$$c = 2$$

Solution Set II.

(II.1) $\frac{7}{12} + \frac{3}{5} =$

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Solution Set II.

(II.1) $\frac{7}{12} + \frac{3}{5} =$

$$\frac{7}{12} \left(\frac{5}{5}\right) + \frac{3}{5} \left(\frac{12}{12}\right) =$$

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Solution Set II.

(II.1) $\frac{7}{12} + \frac{3}{5} =$

$$\frac{7}{12} \left(\frac{5}{5}\right) + \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 + 36}{60} =$$

$$\frac{71}{60} =$$

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[Back to Questions](#)**Solution Set II.**

$$\text{(II.1)} \quad \frac{7}{12} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) + \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 + 36}{60} =$$

$$\frac{71}{60} =$$

$$\frac{10(7) + 1}{10(6) + 0}, \text{ so}$$

$$a =$$

[Back to Questions](#)**Solution Set II.**

$$\text{(II.1)} \quad \frac{7}{12} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) + \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 + 36}{60} =$$

$$\frac{71}{60} =$$

$$\frac{10(7) + 1}{10(6) + 0}, \text{ so}$$

$$a = 7$$

$$b =$$

[Back to Questions](#)**Solution Set II.**

$$(II.1) \quad \frac{7}{12} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) + \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 + 36}{60} =$$

$$\frac{71}{60} =$$

$$\frac{10(7) + 1}{10(6) + 0}, \text{ so}$$

$$a = 7$$

$$b = 1$$

$$c =$$

[Back to Questions](#)**Solution Set II.**

$$(II.1) \quad \frac{7}{12} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) + \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 + 36}{60} =$$

$$\frac{71}{60} =$$

$$\frac{10(7) + 1}{10(6) + 0}, \text{ so}$$

$$a = 7$$

$$b = 1$$

$$c = 6 \quad dc =$$

[Back to Questions](#)**Solution Set II.**

$$(II.1) \quad \frac{7}{12} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5}\right) + \frac{3}{5} \left(\frac{12}{12}\right) =$$

$$\frac{35 + 36}{60} =$$

$$\frac{71}{60} =$$

$$\frac{10(7) + 1}{10(6) + 0}, \text{ so}$$

$$a = 7$$

$$b = 1$$

$$c = 6 \quad dc = 0$$

$$(II.2) \quad \frac{7}{11} + \frac{3}{5} =$$

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$$\text{(II.2)} \quad \frac{7}{11} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) + \frac{3}{5} \left(\frac{11}{11} \right) =$$

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$$(II.2) \quad \frac{7}{11} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) + \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 + 33}{55} =$$

$$\frac{68}{55} =$$

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$$(II.2) \quad \frac{7}{11} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) + \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 + 33}{55} =$$

$$\frac{68}{55} =$$

$$\frac{10(6) + 8}{10(5) + 5}, \text{ so}$$

$$a =$$

[Back to Questions](#)

$$(II.2) \quad \frac{7}{11} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) + \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 + 33}{55} =$$

$$\frac{68}{55} =$$

$$\frac{10(6) + 8}{10(5) + 5}, \text{ so}$$

$$a = 6$$

$$b =$$

[Back to Questions](#)

$$(II.2) \quad \frac{7}{11} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) + \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 + 33}{55} =$$

$$\frac{68}{55} =$$

$$\frac{10(6) + 8}{10(5) + 5}, \text{ so}$$

$$a = 6$$

$$b = 8$$

$$c =$$

[Back to Questions](#)

$$(II.2) \quad \frac{7}{11} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) + \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 + 33}{55} =$$

$$\frac{68}{55} =$$

$$\frac{10(6) + 8}{10(5) + 5}, \text{ so}$$

$$a = 6$$

$$b = 8$$

$$c = 5$$

$$d =$$

[Back to Questions](#)

$$(II.2) \quad \frac{7}{11} + \frac{3}{5} =$$

$$\frac{7}{12} \left(\frac{5}{5} \right) + \frac{3}{5} \left(\frac{11}{11} \right) =$$

$$\frac{35 + 33}{55} =$$

$$\frac{68}{55} =$$

$$\frac{10(6) + 8}{10(5) + 5}, \text{ so}$$

$$a = 6$$

$$b = 8$$

$$c = 5$$

$$d = 5$$

(II.3) $\frac{8}{13} + \frac{3}{5} =$

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$$\text{(II.3)} \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

[Back to Questions](#)

$$\text{(II.3)} \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

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$$\text{(II.3)} \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

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$$\text{(II.3)} \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

$$\frac{79}{65} =$$

[Back to Questions](#)

$$\text{(II.3)} \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

$$\frac{79}{65} =$$

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$$(II.3) \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

$$\frac{79}{65} =$$

$$\frac{7(10) + 9}{10(6) + 5}, \text{ so}$$

$$a =$$

[Back to Questions](#)

$$(II.3) \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

$$\frac{79}{65} =$$

$$\frac{7(10) + 9}{10(6) + 5}, \text{ so}$$

$$a = 7$$

$$b =$$

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$$(II.3) \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

$$\frac{79}{65} =$$

$$\frac{7(10) + 9}{10(6) + 5}, \text{ so}$$

$$a = 7$$

$$b = 9$$

$$c =$$

[Back to Questions](#)

$$(II.3) \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

$$\frac{79}{65} =$$

$$\frac{7(10) + 9}{10(6) + 5}, \text{ so}$$

$$a = 7$$

$$b = 9$$

$$c = 6$$

$$d =$$

$$(II.3) \quad \frac{8}{13} + \frac{3}{5} =$$

$$\frac{8}{13} \left(\frac{5}{5}\right) + \left(\frac{13}{13}\right) \frac{3}{5} =$$

$$\frac{8 \times 5}{13 \times 5} + \frac{13 \times 3}{13 \times 5} =$$

$$\frac{40}{65} + \frac{39}{65} =$$

$$\frac{79}{65} =$$

$$\frac{7(10) + 9}{10(6) + 5}, \text{ so}$$

$$a = 7$$

$$b = 9$$

$$c = 6$$

$$d = 5$$

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$$(II.4) \quad \frac{8}{9} + \frac{6}{7} =$$

[Back to Questions](#)

$$\text{(II.4)} \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

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$$\mathbf{(II.4)} \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

$$\frac{56 + 54}{63} =$$

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$$(II.4) \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

$$\frac{56 + 54}{63} =$$

$$\frac{110}{6(10) + 3}, \text{ so}$$

$$a =$$

[Back to Questions](#)

$$(II.4) \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

$$\frac{56 + 54}{63} =$$

$$\frac{110}{6(10) + 3}, \text{ so}$$

$$a = 1$$

$$b =$$

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$$(II.4) \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

$$\frac{56 + 54}{63} =$$

$$\frac{110}{6(10) + 3}, \text{ so}$$

$$a = 1$$

$$b = 1$$

$$c =$$

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$$(II.4) \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

$$\frac{56 + 54}{63} =$$

$$\frac{110}{6(10) + 3}, \text{ so}$$

$$a = 1$$

$$b = 1$$

$$c = 0$$

$$d =$$

[Back to Questions](#)

$$(II.4) \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

$$\frac{56 + 54}{63} =$$

$$\frac{110}{6(10) + 3}, \text{ so}$$

$$a = 1$$

$$b = 1$$

$$c = 0$$

$$d = 6$$

$$e =$$

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$$(II.4) \quad \frac{8}{9} + \frac{6}{7} =$$

$$\frac{8 \times 7 + 6 \times 9}{9 \times 7} =$$

$$\frac{56 + 54}{63} =$$

$$\frac{110}{6(10) + 3}, \text{ so}$$

$$a = 1$$

$$b = 1$$

$$c = 0$$

$$d = 6$$

$$e = 3$$

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$$(II.5) \quad \frac{5}{7} + \frac{3}{5} =$$

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$$\text{(II.5)} \quad \frac{5}{7} + \frac{3}{5} =$$

$$\frac{25 + 21}{35} =$$

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$$\text{(II.5)} \quad \frac{5}{7} + \frac{3}{5} =$$

$$\frac{25 + 21}{35} =$$

$$\frac{46}{35} =$$

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$$(II.5) \quad \frac{5}{7} + \frac{3}{5} =$$

$$\frac{25 + 21}{35} =$$

$$\frac{46}{35} =$$

$$\frac{4(10) + 6}{3(10) + 5}$$

$$a =$$

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$$(II.5) \quad \frac{5}{7} + \frac{3}{5} =$$

$$\frac{25 + 21}{35} =$$

$$\frac{46}{35} =$$

$$\frac{4(10) + 6}{3(10) + 5}$$

$$a = 4$$

$$b =$$

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$$(II.5) \quad \frac{5}{7} + \frac{3}{5} =$$

$$\frac{25 + 21}{35} =$$

$$\frac{46}{35} =$$

$$\frac{4(10) + 6}{3(10) + 5}$$

$$a = 4$$

$$b = 6$$

$$c =$$

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$$(II.5) \quad \frac{5}{7} + \frac{3}{5} =$$

$$\frac{25 + 21}{35} =$$

$$\frac{46}{35} =$$

$$\frac{4(10) + 6}{3(10) + 5}$$

$$a = 4$$

$$b = 6$$

$$c = 3$$

$$d =$$

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$$(II.5) \quad \frac{5}{7} + \frac{3}{5} =$$

$$\frac{25 + 21}{35} =$$

$$\frac{46}{35} =$$

$$\frac{4(10) + 6}{3(10) + 5}$$

$$a = 4$$

$$b = 6$$

$$c = 3$$

$$d = 5$$

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$$(II.6) \quad \frac{8}{9} + \frac{7}{8} =$$

[Back to Questions](#)

$$\text{(II.6)} \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

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$$\mathbf{(II.6)} \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

$$\frac{127}{72} =$$

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$$(II.6) \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

$$\frac{127}{72} =$$

$$\frac{1(100) + 2(10) + 7}{10(7) + 2}$$

$$a =$$

[Back to Questions](#)

$$(II.6) \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

$$\frac{127}{72} =$$

$$\frac{1(100) + 2(10) + 7}{10(7) + 2}$$

$$a = 1$$

$$b =$$

[Back to Questions](#)

$$(II.6) \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

$$\frac{127}{72} =$$

$$\frac{1(100) + 2(10) + 7}{10(7) + 2}$$

$$a = 1$$

$$b = 2$$

$$c =$$

[Back to Questions](#)

$$(II.6) \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

$$\frac{127}{72} =$$

$$\frac{1(100) + 2(10) + 7}{10(7) + 2}$$

$$a = 1$$

$$b = 2$$

$$c = 7$$

$$d =$$

[Back to Questions](#)

$$(II.6) \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

$$\frac{127}{72} =$$

$$\frac{1(100) + 2(10) + 7}{10(7) + 2}$$

$a = 1$

$b = 2$

$c = 7$

$d = 7$

$e =$

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$$(II.6) \quad \frac{8}{9} + \frac{7}{8} =$$

$$\frac{8(8) + 7(9)}{9(8)} =$$

$$\frac{127}{72} =$$

$$\frac{1(100) + 2(10) + 7}{10(7) + 2}$$

$$a = 1$$

$$b = 2$$

$$c = 7$$

$$d = 7$$

$$e = 2$$

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$$\text{(II.7)} \quad \frac{1}{18} + \frac{1}{19} =$$

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$$\text{(II.7)} \quad \frac{1}{18} + \frac{1}{19} =$$

$$\frac{19 + 18}{19(18)} =$$

$$\frac{37}{342} =$$

[Back to Questions](#)

$$(II.7) \quad \frac{1}{18} + \frac{1}{19} =$$

$$\frac{19 + 18}{19(18)} =$$

$$\frac{37}{342} =$$

$$\frac{3(10) + 7}{100(3) + 4(10) + 2}$$

$$a =$$

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$$(II.7) \quad \frac{1}{18} + \frac{1}{19} =$$

$$\frac{19 + 18}{19(18)} =$$

$$\frac{37}{342} =$$

$$\frac{3(10) + 7}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b =$$

[Back to Questions](#)

$$(II.7) \quad \frac{1}{18} + \frac{1}{19} =$$

$$\frac{19 + 18}{19(18)} =$$

$$\frac{37}{342} =$$

$$\frac{3(10) + 7}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b = 7$$

$$c =$$

[Back to Questions](#)

$$(II.7) \quad \frac{1}{18} + \frac{1}{19} =$$

$$\frac{19 + 18}{19(18)} =$$

$$\frac{37}{342} =$$

$$\frac{3(10) + 7}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b = 7$$

$$c = 3$$

$$d =$$

[Back to Questions](#)

$$(II.7) \quad \frac{1}{18} + \frac{1}{19} =$$

$$\frac{19 + 18}{19(18)} =$$

$$\frac{37}{342} =$$

$$\frac{3(10) + 7}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b = 7$$

$$c = 3$$

$$d = 4$$

$$e =$$

[Back to Questions](#)

$$(II.7) \quad \frac{1}{18} + \frac{1}{19} =$$

$$\frac{19 + 18}{19(18)} =$$

$$\frac{37}{342} =$$

$$\frac{3(10) + 7}{100(3) + 4(10) + 2}$$

$$a = 3$$

$$b = 7$$

$$c = 3$$

$$d = 4$$

$$e = 2$$

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Solution Set III.

(III.1) $\frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$

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Solution Set III.

(III.1) $\frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$

$$\frac{7(5) + 12(3)}{12(5)} - \frac{1}{3} =$$

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Solution Set III.

(III.1) $\frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$

$$\frac{7(5) + 12(3)}{12(5)} - \frac{1}{3} =$$

$$\frac{71}{60} - \frac{20}{60} = \frac{51}{60}$$

[Back to Questions](#)**Solution Set III.**

(III.1) $\frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$

$$\frac{7(5) + 12(3)}{12(5)} - \frac{1}{3} =$$

$$\frac{71}{60} - \frac{20}{60} = \frac{51}{60}$$

$$\frac{17}{20}, \text{ so}$$

$$a =$$

[Back to Questions](#)**Solution Set III.**

$$\text{(III.1)} \quad \frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$$

$$\frac{7(5) + 12(3)}{12(5)} - \frac{1}{3} =$$

$$\frac{71}{60} - \frac{20}{60} = \frac{51}{60}$$

$$\frac{17}{20}, \text{ so}$$

$$a = 1$$

$$b =$$

[Back to Questions](#)**Solution Set III.**

$$\text{(III.1)} \quad \frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$$

$$\frac{7(5) + 12(3)}{12(5)} - \frac{1}{3} =$$

$$\frac{71}{60} - \frac{20}{60} = \frac{51}{60}$$

$$\frac{17}{20}, \text{ so}$$

$$a = 1$$

$$b = 7$$

$$c =$$

[Back to Questions](#)**Solution Set III.**

$$\text{(III.1)} \quad \frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$$

$$\frac{7(5) + 12(3)}{12(5)} - \frac{1}{3} =$$

$$\frac{71}{60} - \frac{20}{60} = \frac{51}{60}$$

$$\frac{17}{20}, \text{ so}$$

$$a = 1$$

$$b = 7$$

$$c = 2$$

$$d =$$

[Back to Questions](#)**Solution Set III.**

$$\text{(III.1)} \quad \frac{7}{12} + \frac{3}{5} - \frac{1}{3} =$$

$$\frac{7(5) + 12(3)}{12(5)} - \frac{1}{3} =$$

$$\frac{71}{60} - \frac{20}{60} = \frac{51}{60}$$

$$\frac{17}{20}, \text{ so}$$

$$a = 1$$

$$b = 7$$

$$c = 2$$

$$d = 0$$

(III.2) $\frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$

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$$\text{(III.2)} \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

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$$\mathbf{(III.2)} \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

[Back to Questions](#)

$$\text{(III.2)} \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

[Back to Questions](#)

$$\text{(III.2)} \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

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$$(III.2) \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

$$\frac{421}{385}, \text{ so}$$

$$a =$$

[Back to Questions](#)

$$(III.2) \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

$$\frac{421}{385}, \text{ so}$$

$$a = 4$$

$$b =$$

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[Back to Questions](#)

$$(III.2) \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

$$\frac{421}{385}, \text{ so}$$

$$a = 4$$

$$b = 2$$

$$c =$$

[Back to Questions](#)

$$(III.2) \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

$$\frac{421}{385}, \text{ so}$$

$$a = 4$$

$$b = 2$$

$$c = 1$$

$$d =$$

[Back to Questions](#)

$$(III.2) \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

$$\frac{421}{385}, \text{ so}$$

$$a = 4$$

$$b = 2$$

$$c = 1$$

$$d = 3$$

$$e =$$

[Back to Questions](#)

$$(III.2) \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

$$\frac{421}{385}, \text{ so}$$

$$a = 4$$

$$b = 2$$

$$c = 1$$

$$d = 3$$

$$e = 8$$

$$f =$$

[Back to Questions](#)

$$(III.2) \quad \frac{7}{11} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{35 + 33}{55} - \frac{1}{7} =$$

$$\frac{68}{55} - \frac{1}{7} =$$

$$\frac{68(7) - 55}{55(7)} =$$

$$\frac{476 - 55}{385} =$$

$$\frac{421}{385}, \text{ so}$$

$a = 4$

$b = 2$

$c = 1$

$d = 3$

$e = 8$

$f = 5$

(III.3) $\frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$

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[Back to Questions](#)

$$\text{(III.3)} \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

[Back to Questions](#)

$$\text{(III.3)} \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

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$$\text{(III.3)} \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

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$$(III.3) \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

$$\frac{488}{455}, \text{ so}$$

$$a =$$

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$$(III.3) \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

$$\frac{488}{455}, \text{ so}$$

$$a = 488 \quad b = 455$$

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$$(III.3) \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

$$\frac{488}{455}, \text{ so}$$

$$a = 4$$

$$b = 8$$

$$c =$$

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$$(III.3) \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

$$\frac{488}{455}, \text{ so}$$

$$a = 4$$

$$b = 8$$

$$c = 8$$

$$d =$$

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$$(III.3) \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

$$\frac{488}{455}, \text{ so}$$

$$a = 4$$

$$b = 8$$

$$c = 8$$

$$d = 4$$

$$e =$$

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$$(III.3) \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

$$\frac{488}{455}, \text{ so}$$

$$a = 4$$

$$b = 8$$

$$c = 8$$

$$d = 4$$

$$e = 5$$

$$f =$$

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$$(III.3) \quad \frac{8}{13} + \frac{3}{5} - \frac{1}{7} =$$

$$\frac{79}{65} - \frac{1}{7} =$$

$$\frac{79(7) - 65}{65(7)} =$$

$$\frac{553 - 65}{455} =$$

$$\frac{488}{455}, \text{ so}$$

$$a = 4$$

$$b = 8$$

$$c = 8$$

$$d = 4$$

$$e = 5$$

$$f = 5$$

$$\text{(III.4)} \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} =$$

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$$\text{(III.4)} \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\text{(III.4)} \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

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$$\text{(III.4)} \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)3} =$$

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$$\text{(III.4)} \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)(3)} =$$

$$\frac{199(3)}{63(2)(3)} =$$

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$$(III.4) \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)3} =$$

$$\frac{199(3)}{63(2)(3)} =$$

$$\frac{199}{126}, \text{ so}$$

$$a =$$

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$$(III.4) \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)3} =$$

$$\frac{199(3)}{63(2)(3)} =$$

$$\frac{199}{126}, \text{ so}$$

$$a = 1 \quad b =$$

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$$(III.4) \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)3} =$$

$$\frac{199(3)}{63(2)(3)} =$$

$$\frac{199}{126}, \text{ so}$$

$$a = 1$$

$$b = 9$$

$$c =$$

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$$(III.4) \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)3} =$$

$$\frac{199(3)}{63(2)(3)} =$$

$$\frac{199}{126}, \text{ so}$$

$$a = 1$$

$$b = 9$$

$$c = 9$$

$$d =$$

[Back to Questions](#)

$$(III.4) \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)3} =$$

$$\frac{199(3)}{63(2)(3)} =$$

$$\frac{199}{126}, \text{ so}$$

$$a = 1$$

$$b = 9$$

$$c = 9$$

$$d = 1$$

$$e =$$

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$$(III.4) \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)3} =$$

$$\frac{199(3)}{63(2)(3)} =$$

$$\frac{199}{126}, \text{ so}$$

$$a = 1$$

$$b = 9$$

$$c = 9$$

$$d = 1$$

$$e = 2$$

$$f =$$

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$$(III.4) \quad \frac{8}{9} + \frac{6}{7} - \frac{1}{6} = \frac{110}{63} - \frac{1}{6} =$$

$$\frac{660 - 63}{63(6)} =$$

$$\frac{597}{63(2)(3)} =$$

$$\frac{199(3)}{63(2)(3)} =$$

$$\frac{199}{126}, \text{ so}$$

$$a = 1$$

$$b = 9$$

$$c = 9$$

$$d = 1$$

$$e = 2$$

$$f = 6$$

(III.5) $\frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$

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$$\text{(III.5)} \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

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$$\text{(III.5)} \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

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$$\text{(III.5)} \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

$$\frac{138 - 70}{105} =$$

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$$(III.5) \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

$$\frac{138 - 70}{105} =$$

$$\frac{68}{105}, \text{ so}$$

$$a =$$

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$$(III.5) \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

$$\frac{138 - 70}{105} =$$

$$\frac{68}{105}, \text{ so}$$

$$a = 6$$

$$b =$$

[Back to Questions](#)

$$(III.5) \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

$$\frac{138 - 70}{105} =$$

$$\frac{68}{105}, \text{ so}$$

$$a = 6$$

$$b = 8$$

$$c =$$

[Back to Questions](#)

$$(III.5) \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

$$\frac{138 - 70}{105} =$$

$$\frac{68}{105}, \text{ so}$$

$$a = 6$$

$$b = 8$$

$$c = 1$$

$$d =$$

[Back to Questions](#)

$$(III.5) \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

$$\frac{138 - 70}{105} =$$

$$\frac{68}{105}, \text{ so}$$

$$a = 6$$

$$b = 8$$

$$c = 1$$

$$d = 0$$

$$e =$$

[Back to Questions](#)

$$(III.5) \quad \frac{5}{7} + \frac{3}{5} - \frac{2}{3} =$$

$$\frac{25 + 21}{35} - \frac{2}{3} =$$

$$\frac{46}{35} - \frac{2}{3} =$$

$$\frac{138 - 70}{105} =$$

$$\frac{68}{105}, \text{ so}$$

$$a = 6$$

$$b = 8$$

$$c = 1$$

$$d = 0$$

$$e = 5$$

$$(III.6) \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

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$$\text{(III.6)} \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

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$$\text{(III.6)} \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

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$$\text{(III.6)} \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

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$$\text{(III.6)} \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

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$$(III.6) \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

$$\frac{241}{504}, \text{ so}$$

$$a =$$

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$$(III.6) \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

$$\frac{241}{504}, \text{ so}$$

$$a = 2 \quad b =$$

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$$\text{(III.6)} \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

$$\frac{241}{504}, \text{ so}$$

$$a = 2$$

$$b = 4$$

$$c =$$

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$$(III.6) \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

$$\frac{241}{504}, \text{ so}$$

$$a = 2$$

$$b = 4$$

$$c = 1$$

$$d =$$

[Back to Questions](#)

$$(III.6) \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

$$\frac{241}{504}, \text{ so}$$

$$a = 2$$

$$b = 4$$

$$c = 1$$

$$d = 5$$

$$e =$$

$$(III.6) \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

$$\frac{241}{504}, \text{ so}$$

$$a = 2$$

$$b = 4$$

$$c = 1$$

$$d = 5$$

$$e = 0$$

$$f =$$

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$$(III.6) \quad \frac{8}{9} + \frac{7}{8} - \frac{9}{7} =$$

$$\frac{64 + 63}{72} - \frac{9}{7} =$$

$$\frac{127}{72} - \frac{9}{7} =$$

$$\frac{127(7) - 72(9)}{72(7)} =$$

$$\frac{889 - 648}{504} =$$

$$\frac{241}{504}, \text{ so}$$

$a = 2$

$b = 4$

$c = 1$

$d = 5$

$e = 0$

$f = 4$

(III.7) $\frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$

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$$\mathbf{(III.7)} \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

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$$\mathbf{(III.7)} \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

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$$\text{(III.7)} \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

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$$\text{(III.7)} \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

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$$(III.7) \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$$a =$$

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$$(III.7) \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$$a = 2 \quad b =$$

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[Back to Questions](#)

$$\text{(III.7)} \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$$a = 2 \quad b = 8 \quad c =$$

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$$\text{(III.7)} \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$$a = 2 \quad b = 8 \quad c = 7 \quad d =$$

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$$\text{(III.7)} \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$$a = 2 \quad b = 8 \quad c = 7 \quad d = 5 \quad e =$$

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$$(III.7) \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$$a = 2$$

$$b = 8$$

$$c = 7$$

$$d = 5$$

$$e = 8$$

$$f =$$

[Back to Questions](#)

$$(III.7) \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$a = 2$

$b = 8$

$c = 7$

$d = 5$

$e = 8$

$f = 1$

$g =$

[Back to Questions](#)

$$(III.7) \quad \frac{1}{18} + \frac{1}{19} - \frac{1}{17} =$$

$$\frac{19 + 18}{18(19)} - \frac{1}{17} =$$

$$\frac{37}{342} - \frac{1}{17} =$$

$$\frac{37(17) - 342}{342(17)} =$$

$$\frac{629 - 342}{342} =$$

$$\frac{287}{5814}, \text{ so}$$

$a = 2$

$b = 8$

$c = 7$

$d = 5$

$e = 8$

$f = 1$

$g = 4$

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Solution Set IV.

(IV.1) $\frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} =$

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Solution Set IV.

(IV.1) $\frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} =$

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Solution Set IV.

(IV.1) $\frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} = \frac{\frac{11}{60}}{\frac{3}{4}} =$

[Back to Questions](#)**Solution Set IV.**

$$\text{(IV.1)} \quad \frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} = \frac{\frac{11}{60}}{\frac{3}{4}} = \left(\frac{11}{60}\right) \left(\frac{4}{3}\right) =$$

[Back to Questions](#)**Solution Set IV.**

$$\text{(IV.1)} \quad \frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} = \frac{\frac{11}{60}}{\frac{3}{4}} = \left(\frac{11}{60}\right) \left(\frac{4}{3}\right) = \frac{11}{45}, \text{ so}$$

 $a =$

[Back to Questions](#)**Solution Set IV.**

$$\text{(IV.1)} \quad \frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} = \frac{\frac{11}{60}}{\frac{3}{4}} = \left(\frac{11}{60}\right) \left(\frac{4}{3}\right) = \frac{11}{45}, \text{ so}$$

$$a = 1$$

$$b =$$

[Back to Questions](#)**Solution Set IV.**

$$\text{(IV.1)} \quad \frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} = \frac{\frac{11}{60}}{\frac{3}{4}} = \left(\frac{11}{60}\right) \left(\frac{4}{3}\right) = \frac{11}{45}, \text{ so}$$

$a = 1$

$b = 1$

$c =$

[Back to Questions](#)**Solution Set IV.**

$$\text{(IV.1)} \quad \frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} = \frac{\frac{11}{60}}{\frac{3}{4}} = \left(\frac{11}{60}\right) \left(\frac{4}{3}\right) = \frac{11}{45}, \text{ so}$$

$a = 1$

$b = 1$

$c = 4$

$d =$

[Back to Questions](#)**Solution Set IV.**

$$\text{(IV.1)} \quad \frac{\frac{7}{12} - \frac{2}{5}}{\frac{3}{4}} = \frac{\frac{35-24}{60}}{\frac{3}{4}} = \frac{\frac{11}{60}}{\frac{3}{4}} = \left(\frac{11}{60}\right) \left(\frac{4}{3}\right) = \frac{11}{45}, \text{ so}$$

$a = 1$

$b = 1$

$c = 4$

$d = 5$

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$$\text{(IV.2)} \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} =$$

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$$(IV.2) \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} = \frac{\frac{49-39}{91}}{\frac{4}{7}} =$$

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$$(IV.2) \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} = \frac{\frac{49-39}{91}}{\frac{4}{7}} = \frac{\frac{10}{91}}{\frac{4}{7}} =$$

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$$\text{(IV.2)} \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} = \frac{\frac{49-39}{91}}{\frac{4}{7}} = \frac{\frac{10}{91}}{\frac{4}{7}} = \left(\frac{10}{91}\right) \left(\frac{7}{4}\right) =$$

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$$(IV.2) \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} = \frac{\frac{49-39}{91}}{\frac{4}{7}} = \frac{\frac{10}{91}}{\frac{4}{7}} = \left(\frac{10}{91}\right) \left(\frac{7}{4}\right) = \frac{5}{26}, \text{ so}$$

 $a =$

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$$\text{(IV.2)} \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} = \frac{\frac{49-39}{91}}{\frac{4}{7}} = \frac{\frac{10}{91}}{\frac{4}{7}} = \left(\frac{10}{91}\right) \left(\frac{7}{4}\right) = \frac{5}{26}, \text{ so}$$

$$a = 5$$

$$b =$$

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$$(IV.2) \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} = \frac{\frac{49-39}{91}}{\frac{4}{7}} = \frac{\frac{10}{91}}{\frac{4}{7}} = \left(\frac{10}{91}\right) \left(\frac{7}{4}\right) = \frac{5}{26}, \text{ so}$$

$$a = 5$$

$$b = 2$$

$$c =$$

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$$\text{(IV.2)} \quad \frac{\frac{7}{13} - \frac{3}{7}}{\frac{4}{7}} = \frac{\frac{49-39}{91}}{\frac{4}{7}} = \frac{\frac{10}{91}}{\frac{4}{7}} = \left(\frac{10}{91}\right) \left(\frac{7}{4}\right) = \frac{5}{26}, \text{ so}$$

$$a = 5$$

$$b = 2$$

$$c = 6$$

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$$\text{(IV.3)} \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} =$$

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$$(IV.3) \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} =$$

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$$\text{(IV.3)} \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} =$$

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$$\text{(IV.3)} \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) =$$

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$$\text{(IV.3)} \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) = \frac{679}{195}, \text{ so}$$

 $a =$

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$$\text{(IV.3)} \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) = \frac{679}{195}, \text{ so}$$

$$a = 6 \quad b =$$

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$$\text{(IV.3)} \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) = \frac{679}{195}, \text{ so}$$

$$a = 6$$

$$b = 7$$

$$c =$$

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$$\text{(IV.3)} \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) = \frac{679}{195}, \text{ so}$$

$$a = 6 \quad b = 7 \quad c = 9 \quad d =$$

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$$(IV.3) \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) = \frac{679}{195}, \text{ so}$$

$a = 6$

$b = 7$

$c = 9$

$d = 1$

$e =$

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$$(IV.3) \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{\frac{97}{65}}{\frac{3}{7}} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) = \frac{679}{195}, \text{ so}$$

$a = 6$

$b = 7$

$c = 9$

$d = 1$

$e = 9$

$f =$

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$$(IV.3) \quad \frac{\frac{9}{13} + \frac{4}{5}}{\frac{3}{7}} = \frac{\frac{45+52}{65}}{\frac{3}{7}} = \frac{97}{65} = \left(\frac{97}{65}\right) \left(\frac{7}{3}\right) = \frac{679}{195}, \text{ so}$$

$a = 6$

$b = 7$

$c = 9$

$d = 1$

$e = 9$

$f = 5$

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$$(IV.4) \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} =$$

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$$\text{(IV.4)} \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} =$$

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$$(IV.4) \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} = \frac{\frac{2}{63}}{\frac{5}{6}} =$$

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$$\text{(IV.4)} \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} = \frac{\frac{2}{63}}{\frac{5}{6}} = \left(\frac{2}{63}\right) \left(\frac{6}{5}\right) =$$

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$$(IV.4) \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} = \frac{\frac{2}{63}}{\frac{5}{6}} = \left(\frac{2}{63}\right)\left(\frac{6}{5}\right) = \frac{4}{105}, \text{ so}$$

 $a =$

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$$(IV.4) \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} = \frac{\frac{2}{63}}{\frac{5}{6}} = \left(\frac{2}{63}\right)\left(\frac{6}{5}\right) = \frac{4}{105}, \text{ so}$$

$$a = 4$$

$$b =$$

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$$(IV.4) \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} = \frac{\frac{2}{63}}{\frac{5}{6}} = \left(\frac{2}{63}\right)\left(\frac{6}{5}\right) = \frac{4}{105}, \text{ so}$$

$$a = 4$$

$$b = 1$$

$$c =$$

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$$(IV.4) \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} = \frac{\frac{2}{63}}{\frac{5}{6}} = \left(\frac{2}{63}\right) \left(\frac{6}{5}\right) = \frac{4}{105}, \text{ so}$$

$$a = 4$$

$$b = 1$$

$$c = 0$$

$$d =$$

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$$(IV.4) \quad \frac{\frac{8}{9} - \frac{6}{7}}{\frac{5}{6}} = \frac{\frac{56-54}{63}}{\frac{5}{6}} = \frac{\frac{2}{63}}{\frac{5}{6}} = \left(\frac{2}{63}\right)\left(\frac{6}{5}\right) = \frac{4}{105}, \text{ so}$$

$$a = 4$$

$$b = 1$$

$$c = 0$$

$$d = 5$$

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$$\text{(IV.5)} \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} =$$

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$$\text{(IV.5)} \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} =$$

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$$\text{(IV.5)} \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} = \frac{-\frac{4}{35}}{\frac{2}{13}} =$$

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$$\text{(IV.5)} \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} = \frac{-\frac{4}{35}}{\frac{2}{13}} = -\left(\frac{4}{35}\right)\left(\frac{13}{2}\right) =$$

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$$\text{(IV.5)} \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} = \frac{-\frac{4}{35}}{\frac{2}{13}} = -\left(\frac{4}{35}\right)\left(\frac{13}{2}\right) = -\frac{26}{35}, \text{ so}$$

 $a =$

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$$\text{(IV.5)} \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} = \frac{-\frac{4}{35}}{\frac{2}{13}} = -\left(\frac{4}{35}\right)\left(\frac{13}{2}\right) = -\frac{26}{35}, \text{ so}$$

$$a = 2$$

$$b =$$

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$$(IV.5) \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} = \frac{-\frac{4}{35}}{\frac{2}{13}} = -\left(\frac{4}{35}\right)\left(\frac{13}{2}\right) = -\frac{26}{35}, \text{ so}$$

$$a = 2$$

$$b = 6$$

$$c =$$

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$$(IV.5) \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} = \frac{-\frac{4}{35}}{\frac{2}{13}} = -\left(\frac{4}{35}\right)\left(\frac{13}{2}\right) = -\frac{26}{35}, \text{ so}$$

$$a = 2$$

$$b = 6$$

$$c = 3$$

$$d = ?$$

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$$(IV.5) \quad \frac{-\frac{5}{7} + \frac{3}{5}}{\frac{2}{13}} = \frac{\frac{-25+21}{35}}{\frac{2}{13}} = \frac{-\frac{4}{35}}{\frac{2}{13}} = -\left(\frac{4}{35}\right)\left(\frac{13}{2}\right) = -\frac{26}{35}, \text{ so}$$

$a = 2$

$b = 6$

$c = 3$

$d = ? 5$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} =$$

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(IV.6)

$$\frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} =$$

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$$\text{(IV.6)} \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

 $a =$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

$$a = 8 \quad b =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

$$a = 8 \quad b = 8 \quad c =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

$$a = 8 \quad b = 8 \quad c = 9 \quad d =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

$$a = 8 \quad b = 8 \quad c = 9 \quad d = 1 \quad e =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

$$a = 8 \quad b = 8 \quad c = 9 \quad d = 1 \quad e = 0 \quad f =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

$$a = 8 \quad b = 8 \quad c = 9 \quad d = 1 \quad e = 0 \quad f = 8 \quad g =$$

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$$(IV.6) \quad \frac{\frac{8}{9} + \frac{7}{8}}{\frac{15}{7}} = \frac{\frac{64+63}{72}}{\frac{15}{7}} = \frac{\frac{127}{72}}{\frac{15}{7}} = \left(\frac{127}{72}\right) \left(\frac{7}{15}\right) = \frac{889}{1080}, \text{ so}$$

$a = 8$

$b = 8$

$c = 9$

$d = 1$

$e = 0$

$f = 8$

$g = 0$

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$$\text{(IV.7)} \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} =$$

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$$\text{(IV.7)} \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} =$$

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$$\text{(IV.7)} \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} =$$

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$$\text{(IV.7)} \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) =$$

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$$\text{(IV.7)} \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

 $a =$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b =$$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b = 4 \quad c =$$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b = 4 \quad c = 0 \quad d =$$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b = 4 \quad c = 0 \quad d = 1 \quad e =$$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b = 4 \quad c = 0 \quad d = 1 \quad e = 1 \quad f =$$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b = 4 \quad c = 0 \quad d = 1 \quad e = 1 \quad f = 0 \quad g =$$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b = 4 \quad c = 0 \quad d = 1 \quad e = 1 \quad f = 0 \quad g = 2 \quad h =$$

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$$(IV.7) \quad \frac{\frac{13}{18} + \frac{17}{19}}{\frac{3}{17}} = \frac{\frac{247+306}{342}}{\frac{3}{17}} = \frac{\frac{553}{342}}{\frac{3}{17}} = \left(\frac{553}{342}\right) \left(\frac{17}{3}\right) = \frac{9401}{1026}, \text{ so}$$

$$a = 9 \quad b = 4 \quad c = 0 \quad d = 1 \quad e = 1 \quad f = 0 \quad g = 2 \quad h = 6$$