

## Fractions Part 1

### Exercise Worksheet 3.1 Solutions

1. Solve the following:

$$\text{i. } \frac{2}{18} + \frac{10}{16} = \frac{16}{144} + \frac{90}{144} = \frac{106}{144} = \frac{53}{72}$$

$$\text{ii. } \frac{3}{10} + \frac{3}{4} = \frac{6}{20} + \frac{15}{20} = \frac{21}{20} = \frac{21}{20} = 1 \frac{1}{20}$$

$$\text{iii. } \frac{6}{19} + \frac{16}{18} = \frac{108}{342} + \frac{304}{342} = \frac{412}{342} = \frac{206}{171} = 1 \frac{35}{171}$$

$$\text{iv. } \frac{4}{12} + \frac{4}{15} = \frac{20}{60} + \frac{16}{60} = \frac{36}{60} = \frac{3}{5}$$

$$\text{v. } \frac{3}{7} + \frac{7}{10} = \frac{30}{70} + \frac{49}{70} = \frac{79}{70} = \frac{79}{70} = 1 \frac{9}{70}$$

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2. Solve the following:

$$\text{i. } \frac{5}{7} - \frac{6}{15} = \frac{75}{105} - \frac{42}{105} = \frac{33}{105} = \frac{11}{35}$$

$$\text{ii. } \frac{2}{4} - \frac{2}{6} = \frac{6}{12} - \frac{4}{12} = \frac{2}{12} = \frac{1}{6}$$

$$\text{iii. } \frac{3}{4} - \frac{1}{3} = \frac{9}{12} - \frac{4}{12} = \frac{5}{12}$$

$$\text{iv. } \frac{3}{4} - \frac{1}{12} = \frac{9}{12} - \frac{1}{12} = \frac{8}{12} = \frac{2}{3}$$

$$\text{v. } \frac{13}{17} - \frac{3}{8} = \frac{104}{136} - \frac{51}{136} = \frac{53}{136}$$

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3. Solve the following:

$$\text{i. } \frac{3}{6} + \frac{1}{3} + \frac{4}{4} = \frac{6}{12} + \frac{4}{12} + \frac{12}{12} = \frac{22}{12} = \frac{11}{6} = 1 \frac{5}{6}$$

$$\text{ii. } \frac{3}{9} + \frac{2}{9} + \frac{2}{6} = \frac{6}{18} + \frac{4}{18} + \frac{6}{18} = \frac{16}{18} = \frac{8}{9}$$

$$\text{iii. } \frac{5}{7} + \frac{1}{9} + \frac{8}{10} = \frac{450}{630} + \frac{70}{630} + \frac{504}{630} = \frac{1024}{630} = \frac{512}{315} = 1 \frac{197}{315}$$

$$\text{iv. } \frac{1}{2} + \frac{1}{4} + \frac{3}{3} = \frac{6}{12} + \frac{3}{12} + \frac{12}{12} = \frac{21}{12} = \frac{7}{4} = 1 \frac{3}{4}$$

$$\text{v. } \frac{1}{3} + \frac{1}{5} + \frac{8}{9} = \frac{15}{45} + \frac{9}{45} + \frac{40}{45} = \frac{64}{45} = \frac{64}{45} = 1 \frac{19}{45}$$

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4. Solve the following:

$$\text{i. } \frac{8}{9} - \frac{1}{9} - \frac{2}{4} = \frac{32}{36} - \frac{4}{36} - \frac{18}{36} = \frac{10}{36} = \frac{5}{18}$$

$$\text{ii. } \frac{5}{6} - \frac{1}{5} - \frac{3}{8} = \frac{100}{120} - \frac{24}{120} - \frac{45}{120} = \frac{31}{120}$$

$$\text{iii. } \frac{6}{7} - \frac{1}{9} - \frac{2}{6} = \frac{108}{126} - \frac{14}{126} - \frac{42}{126} = \frac{52}{126} = \frac{26}{63}$$

$$\text{iv. } \frac{5}{6} - \frac{3}{7} - \frac{1}{8} = \frac{140}{168} - \frac{72}{168} - \frac{21}{168} = \frac{47}{168}$$

$$\text{v. } \frac{5}{6} - \frac{1}{3} - \frac{1}{3} = \frac{5}{6} - \frac{2}{6} - \frac{2}{6} = \frac{1}{6}$$

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5. Solve the following:

$$\text{i. } \frac{6}{7} + \frac{2}{10} - \frac{1}{7} = \frac{60}{70} + \frac{14}{70} - \frac{10}{70} = \frac{64}{70} = \frac{32}{35}$$

$$\text{ii. } \frac{3}{4} - \frac{3}{7} + \frac{4}{8} = \frac{42}{56} - \frac{24}{56} + \frac{28}{56} = \frac{46}{56} = \frac{23}{28}$$

$$\text{iii. } \frac{4}{5} + \frac{2}{5} - \frac{4}{10} = \frac{8}{10} + \frac{4}{10} - \frac{4}{10} = \frac{8}{10} = \frac{4}{5}$$

$$\text{iv. } \frac{2}{3} - \frac{1}{3} + \frac{3}{6} = \frac{4}{6} - \frac{2}{6} + \frac{3}{6} = \frac{5}{6}$$

$$\text{v. } \frac{5}{6} + \frac{2}{7} - \frac{1}{3} = \frac{35}{42} + \frac{12}{42} - \frac{14}{42} = \frac{33}{42} = \frac{11}{14}$$

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6. Verify:

$$\text{i. } \frac{7}{8} + \frac{6}{11} = \frac{6}{11} + \frac{7}{8}$$

$$\text{ii. } \frac{2}{4} + \frac{9}{9} = \frac{9}{9} + \frac{2}{4}$$

$$\text{iii. } \frac{2}{4} + \frac{13}{19} = \frac{13}{19} + \frac{2}{4}$$

$$\text{iv. } \frac{2}{17} + \frac{14}{15} = \frac{14}{15} + \frac{2}{17}$$

$$\text{v. } \frac{2}{9} + \frac{17}{19} = \frac{17}{19} + \frac{2}{9}$$

## Solutions Exercise 6

$$\text{i. LHS} = \frac{77}{88} + \frac{48}{88} = \frac{125}{88} = \frac{125}{88} = 1 \frac{37}{88}$$

$$\text{RHS} = \frac{48}{88} + \frac{77}{88} = \frac{125}{88} = \frac{125}{88} = 1 \frac{37}{88}$$

$$\text{ii. LHS} = \frac{18}{36} + \frac{36}{36} = \frac{54}{36} = \frac{3}{2} = 1 \frac{1}{2}$$

$$\text{RHS} = \frac{36}{36} + \frac{18}{36} = \frac{54}{36} = \frac{3}{2} = 1 \frac{1}{2}$$

$$\text{iii. LHS} = \frac{38}{76} + \frac{52}{76} = \frac{90}{76} = \frac{45}{38} = 1 \frac{7}{38}$$

$$\text{RHS} = \frac{52}{76} + \frac{38}{76} = \frac{90}{76} = \frac{45}{38} = 1 \frac{7}{38}$$

$$\text{iv. LHS} = \frac{30}{255} + \frac{238}{255} = \frac{268}{255} = \frac{268}{255} = 1 \frac{13}{255}$$

$$\text{RHS} = \frac{238}{255} + \frac{30}{255} = \frac{268}{255} = \frac{268}{255} = 1 \frac{13}{255}$$

$$\text{v. LHS} = \frac{38}{171} + \frac{153}{171} = \frac{191}{171} = \frac{191}{171} = 1 \frac{20}{171}$$

$$\text{RHS} = \frac{153}{171} + \frac{38}{171} = \frac{191}{171} = \frac{191}{171} = 1 \frac{20}{171}$$

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7. Verify:

i. Verify:  $\left[ \frac{7}{12} + \frac{1}{7} \right] + \frac{2}{16} = \frac{7}{12} + \left[ \frac{1}{7} + \frac{2}{16} \right]$

=286/336

ii. Verify:  $\left[ \frac{5}{9} + \frac{3}{7} \right] + \frac{7}{7} = \frac{5}{9} + \left[ \frac{3}{7} + \frac{7}{7} \right]$

=125/63

iii. Verify:  $\left[ \frac{9}{20} + \frac{1}{7} \right] + \frac{19}{19} = \frac{9}{20} + \left[ \frac{1}{7} + \frac{19}{19} \right]$

=4237/2660

iv. Verify:  $\left[ \frac{11}{13} + \frac{6}{17} \right] + \frac{5}{5} = \frac{11}{13} + \left[ \frac{6}{17} + \frac{5}{5} \right]$

= 2430/1105

v. Verify:  $\left[ \frac{9}{16} + \frac{1}{3} \right] + \frac{1}{5} = \frac{9}{16} + \left[ \frac{1}{3} + \frac{1}{5} \right]$

=263/240