

Fractions

October 12, 2015

#1)

$$\frac{\frac{3}{8} - 2}{\frac{6}{3} + \frac{4}{3}} = \frac{\frac{3-16}{8}}{\frac{18+20}{15}} = \frac{-\frac{13}{8}}{\frac{38}{15}} = -\frac{13}{8} \cdot \frac{15}{38} = \boxed{-\frac{195}{304}}$$

#2)

$$\frac{\frac{1}{3} + 3 - \frac{1}{3} + \frac{1}{3} + 3 - \frac{1}{3}}{\frac{1+9}{3}}$$

$$\frac{\frac{10}{3} - \frac{1}{3}}{\frac{9}{3}}$$

$$\frac{3 + \frac{1}{3}}{\frac{9+1}{3}}$$

$$\frac{\frac{10}{3} + 3}{\frac{10+9}{3}}$$

$$\frac{\frac{19}{3} - \frac{1}{3}}$$

$$\frac{18}{3}$$

$$\boxed{6}$$

$$\#3) \frac{\frac{11}{4} - \frac{5}{2}}{\frac{8}{7} + \frac{1}{6}} = \frac{\frac{11-10}{4}}{\frac{48+7}{42}} = \frac{\frac{1}{4}}{\frac{55}{42}}$$

$$= \frac{1}{4} \cdot \frac{21}{55} = \boxed{\frac{21}{110}}$$

$$\#4) \frac{-\frac{9}{16} + 3}{-\frac{4}{3} - \frac{3}{5}} = \frac{\frac{-9+48}{16}}{\frac{-20-9}{15}} = \frac{\frac{39}{16}}{-\frac{29}{15}}$$

$$= \frac{39}{16} \cdot -\frac{15}{29} = \boxed{-\frac{585}{464}}$$

$$\#5) \frac{\frac{7}{5} - \frac{1}{4} + 2 - \frac{3}{8}}{\frac{23}{20} + 2} = \frac{\frac{28-5}{20}}{\frac{23+40}{20}} = \frac{23}{63} - \frac{3}{8}$$

$$\frac{378-45}{120} = \boxed{\frac{333}{120}} = \boxed{\frac{111}{40}}$$

$$\begin{aligned}
 \#6) \quad & \frac{\frac{7}{2} + 3 - \frac{1}{4}}{\frac{6}{5} - \frac{1}{2} + 4} = \frac{\frac{14 + 12 - 1}{4}}{\frac{12 - 5 + 40}{10}} \\
 & = \frac{\frac{25}{4}}{\frac{47}{10}} = \frac{25}{4} \cdot \frac{5}{10} \cdot \frac{10}{47} \\
 & = \frac{125}{94}
 \end{aligned}$$

$$\begin{aligned}
 \#7) \quad & \frac{\frac{1}{3} + \frac{1}{4} - \frac{1}{5} + \frac{1}{6}}{\frac{1}{7}} \\
 & \frac{20 + 15 - 12 + 10}{60} \\
 & \frac{\frac{33}{60}}{\frac{1}{7}} = \frac{33}{60} \cdot \frac{7}{1} = \frac{231}{60} = \frac{77}{20}
 \end{aligned}$$

#8)

$$\frac{\frac{9}{8} + \frac{2}{x}}{-\frac{5}{x^2}} = \frac{\frac{9x+16}{8x}}{-\frac{5}{x^2}}$$
$$= \frac{9x+16}{8x} \cdot \frac{x^2}{5}$$
$$= \frac{(9x+16)(x)}{40}$$

or

$$\frac{9x^2 + 16x}{40}$$