

$$1.) \quad x + \frac{4}{3} = -\frac{1}{9}$$

$$\quad \quad \quad -\frac{4}{3} \quad \quad -\frac{4}{3}$$

$$-\frac{1}{9} = -\frac{1}{9}$$

$$\frac{-4}{3} = \frac{-12}{9}$$

\*3

$$x = -\frac{1}{9} - \frac{4}{3}$$

$$x = \left[ -\frac{1}{9} - \frac{12}{9} \right] = \boxed{\frac{-13}{9}}$$

$$-1 - 12 = -1 + (-12) = -13$$

$$2.) \quad x - 1\frac{1}{3} = \frac{-47}{15}$$

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

$$1\frac{1}{3} = \frac{(3*1) + 1}{3} = \frac{4}{3}$$

$$x = \frac{-47}{15} + 1\frac{1}{3}$$

$$\frac{-47}{15} = \frac{-47}{15}$$

$$\frac{4}{3} = \frac{20}{15}$$

\*5

$$x = \frac{-47}{15} + \frac{4}{3}$$

$$x = \left[ \frac{-47}{15} + \frac{20}{15} \right] = \frac{-27}{15} = \frac{-27 \div 3}{15 \div 3} = \boxed{\frac{-9}{5}}$$

Common denominator

$$-47 + 20 = -27$$

$$47 - 20 = 27$$

$$3.) \quad a - \frac{13}{8} = \frac{-23}{4}$$

$$+ \frac{13}{8} \qquad + \frac{13}{8}$$

$$\frac{-23}{4} = \frac{-46}{8}$$

\*2

$$\frac{13}{8} = \frac{13}{8}$$

$$a = -\frac{23}{4} + \frac{13}{8}$$

$$\left[ -\frac{46}{8} + \frac{13}{8} \right] = \boxed{\frac{-33}{8}}$$

$$\downarrow$$

$$-46 + 13 = -33$$

$$46 - 13 = 33$$

$$4.) \quad -9\frac{5}{8} = n - 10\frac{15}{16}$$

$$+ 10\frac{15}{16} \qquad + 10\frac{15}{16}$$

$$\begin{array}{r} 10\frac{15}{16} \\ - 9\frac{5}{8} \\ \hline \end{array} = \begin{array}{r} 10\frac{15}{16} \\ - 9\frac{10}{16} \\ \hline \end{array}$$

$$\boxed{1\frac{5}{16}}$$

$$\frac{15}{16} = \frac{15}{16}$$

$$\frac{5}{8} = \frac{10}{16}$$

\*2

\*2

$$\frac{2}{3} X = \frac{7}{8}$$

Think:

$$\frac{2X}{2} = \frac{8}{2}$$

$$X = 4$$

$$X = \frac{7}{8} \div \frac{2}{3}$$

$$X = \frac{21}{16}$$

$$X = \frac{7}{8} \div \left(\frac{2}{3}\right)$$

$$\frac{7}{8} * \frac{3}{2} = \frac{21}{16}$$

Keep, Change, Flip!

Flip  $\frac{2}{3}$  to  $\frac{3}{2}$

Alternative to dividing is to multiply by the inverse

$$\frac{3}{2} \left(\frac{2}{3} X\right) = \left(\frac{7}{8}\right) \frac{3}{2} = \frac{21}{16}$$

$$X = \frac{21}{16}$$

inverse  $\rightarrow$  flip

$$\frac{8}{1} \left(\frac{1}{8} X\right) = \left(\frac{12}{17}\right) \frac{8}{1} = \frac{96}{17}$$

$$\left(\frac{1}{8}\right) \frac{8}{1}$$

$$1\frac{4}{5} X = \frac{7}{11}$$

$$1\frac{4}{5} = \frac{(5*1)+4}{5} = \frac{5+4}{5}$$

$$\frac{9}{5} X = \frac{7}{11}$$

Option #1

$$\frac{9}{5}$$

$$\frac{9}{5} X = \frac{7}{11}$$

$$X = \frac{7}{11} \div \frac{9}{5}$$

$$\frac{7}{11} * \frac{5}{9} = \frac{35}{99}$$

Option #2

$$\frac{5}{9} \left( \frac{9}{5} X \right) = \left( \frac{7}{11} \right) \frac{5}{9} = \frac{35}{99}$$

$$1.) \frac{3}{5} X = 2\frac{7}{8}$$

$$\left[ 2\frac{7}{8} \right] = \frac{(2*8)+7}{8} = \frac{16+7}{8}$$

$$\frac{5}{3} \left( \frac{3}{5} X \right) = \left( \frac{23}{8} \right) \frac{5}{3} = \frac{115}{24}$$

mixed number  $\rightarrow$  improper fraction  $\left[ \frac{23}{8} \right]$

$$2.) \quad 8\frac{1}{4} \times = 6\frac{2}{3}$$

$$8\frac{1}{4} = \frac{(8 \times 4) + 1}{4} = \frac{32 + 1}{4}$$

$$\frac{4}{33} \left( \frac{33}{4} \times \right) = \left( \frac{20}{3} \right) \frac{4}{33} = \frac{80}{99}$$

$$6\frac{2}{3} = \frac{(6 \times 3) + 2}{3} = \frac{20}{3}$$

$$\boxed{\frac{80}{99}}$$

$$\frac{20}{3}$$