

$$1.) \quad \frac{16}{39} = X + \frac{1}{3}$$

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

$$X = \frac{16}{39} - \frac{1}{3}$$

$$\frac{16}{39} = \frac{16}{39}$$

$$\frac{1}{3} = \frac{13}{39}$$

(Note: 16 and 13 are both multiplied by 13 to get the common denominator 39)

$$X = \frac{16}{39} - \frac{13}{39} =$$

$$\frac{3 \div 3}{39 \div 3} = \boxed{\frac{1}{13}}$$

$$2.) \quad 3\frac{1}{4} = X - \frac{3}{8}$$

$$+ \frac{3}{8}$$

$$3\frac{1}{4} = X - \frac{3}{8} + \frac{3}{8}$$

$$3\frac{1}{4} = \frac{(3 \times 4) + 1}{4} = \frac{13}{4}$$

$$X = \frac{13}{4} + \frac{3}{8}$$

$$\frac{13}{4} = \frac{26}{8}$$

$$X = \frac{26}{8} + \frac{3}{8} = \boxed{\frac{29}{8}}$$

$$\frac{3}{8} = \frac{3}{8}$$

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

$$\quad \quad \quad -\frac{7}{8} \quad \quad \quad -\frac{7}{8}$$

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

$$\frac{2}{3} = \frac{16}{24}$$

$$-\frac{7}{8} = \frac{-21}{24}$$

(Note: 2 and 16 are multiplied by 8; 3 and 24 are multiplied by 8; 7 and 21 are multiplied by 3)

$$X = \frac{16}{24} - \frac{21}{24} =$$

$$\boxed{\frac{-5}{24}}$$

$$2.) \quad -2\frac{3}{4} = X - 4\frac{1}{2}$$

$$\quad \quad \quad +4\frac{1}{2} \quad \quad \quad +4\frac{1}{2}$$

$$X = 4\frac{1}{2} - 2\frac{3}{4}$$

$$\frac{1}{2} = \frac{2}{4}$$

$$4\frac{2}{4} - 2\frac{3}{4}$$

$$\frac{18}{4} - \frac{11}{4} = \boxed{\frac{7}{4}}$$

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

$$4\frac{2}{4} = \frac{(4 \times 4) + 2}{4} = \frac{18}{4}$$

$$2\frac{3}{4} = \frac{(2 \times 4) + 3}{4} = \frac{11}{4}$$

$$2\frac{5}{9} = \frac{2}{3} X \quad X = 2\frac{5}{9} \div \frac{2}{3} \quad \text{Keep / change flip!}$$

$$\frac{3}{2} \left(2\frac{5}{9} \right) = \left(\frac{2}{3} X \right) \frac{3}{2} \quad \text{multiply by inverse} \quad 2\frac{5}{9} * \frac{3}{2}$$

$$2\frac{5}{9} = \frac{(2*9)+5}{9} = \frac{23}{9}$$

$$X = 2\frac{5}{9} * \frac{3}{2}$$

$$X = \frac{23}{9 \div 3} * \frac{3 \div 3}{2}$$

$$\frac{23}{3} * \frac{1}{2} = \boxed{\frac{23}{6}}$$

$$1.) \frac{7}{6} \left(\frac{6}{7} X \right) = \left(\frac{-4}{21} \right) \frac{7}{6}$$

$$X = \frac{-4}{21 \div 7} * \frac{7 \div 7}{6}$$

$$\frac{-4 \div 2}{3} * \frac{1}{6 \div 2}$$

$$\frac{-2}{3} * \frac{1}{3} = \boxed{\frac{-2}{9}}$$

$$2.) \frac{4}{3} \left(\frac{3}{4} X \right) = \left(2\frac{8}{9} \right) \frac{4}{3}$$

$$X = 2\frac{8}{9} * \frac{4}{3}$$

$$2\frac{8}{9} = \frac{(2*9)+8}{9} = \frac{26}{9}$$

$$\frac{26}{9} * \frac{4}{3} = \boxed{\frac{104}{27}}$$

$$1.) \frac{3}{2} \left(\frac{2}{3} x \right) = \left(\frac{4}{-7} \right) \frac{3}{2}$$

$$2.) \frac{9}{2} \left(\frac{2}{9} x \right) = \left(\frac{3}{7} \right) \frac{9}{2}$$

$$3.) \frac{7}{2} \left(\frac{2}{7} x \right) = \left(\frac{5}{8} \right) \frac{7}{2}$$

$$4.) 5 \left(\frac{1}{5} x \right) = \left(\frac{11}{10} \right) 5$$

$$5.) \frac{12}{9} \left(\frac{9}{12} x \right) = \left(\frac{1}{3} \right) \frac{12}{9}$$

$$6.) \frac{8}{7} \left(\frac{7}{8} x \right) = \left(\frac{2}{3} \right) \frac{8}{7}$$

$$7.) \frac{5}{2} \left(\frac{2}{5} x \right) = \left(\frac{8}{11} \right) \frac{5}{2}$$

$$8.) \frac{3}{4} \left(\frac{4}{3} x \right) = \left(\frac{9}{8} \right) \frac{3}{4}$$

$$(ab^2)^3 = ab^2 * ab^2 * ab^2$$

$$a^{1+1+1} b^{2+2+2} = a^3 b^6$$

$$(4xy^3)^3 = \boxed{4^3 x^3 y^9} = \boxed{64x^3y^9}$$

$$\left(\frac{a^3}{2b^4} \right)^5 = \boxed{\frac{a^{15}}{2^5 b^{20}}}$$

$$1.) (5mp^2)^2$$

$$\boxed{5^2 m^2 p^4} \quad \boxed{25 m^2 p^4}$$

$$2.) (6a^3b^4)^3$$

$$\boxed{6^3 a^9 b^{12}} = \boxed{216 a^9 b^{12}}$$

$$3.) (m^4n^3)^2$$

$$\boxed{m^8 n^6}$$

$$4.) \left(\frac{7x^2z^4}{3y} \right)^3$$

$$\frac{7^3 x^6 z^{12}}{3^3 y^3}$$

$$5.) (2xy^4)^0 = 1$$

$$6.) \left(\frac{8ab}{c^5} \right)^6$$

$$\boxed{\frac{8^3 a^3 b^6}{c^{15}}}$$