W-PA Pre-Algebra Week 26 4/3

1.) $\frac{16}{39} = x + \frac{1}{3}$ opposite

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

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

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

$*13$

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

$*13$

$\frac{16}{39} - \frac{13}{39} = \frac{3}{39} \div 3 = \boxed{\frac{1}{13}}$

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

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

$3\frac{1}{4} + \frac{3}{8} = x$

$3\frac{2}{8} + \frac{3}{8} = \boxed{3\frac{5}{8}}$

$\frac{1}{4} + \frac{3}{8}$

Find the common denominator

$*2$

$\frac{1}{4} = \frac{2}{8}$

$*2$

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

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

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

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

$\frac{2}{3} = \frac{16}{24}$ ($*8$)

$\frac{7}{8} = \frac{21}{24}$ ($*3$)

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

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

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

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

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

$4\frac{1}{2}$

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

$\frac{1}{2} = \frac{2}{4}$ ($*2$)

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

$3\,4\frac{2}{4} + 4$ $\quad 3\frac{6}{4}$

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

$\boxed{1\frac{3}{4}}$

$3\,4\,12$

$-\,23$

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$2\frac{5}{9} = \frac{2}{3}x$

$\div\frac{2}{3} \quad \div\frac{2}{3}$

$x = 2\frac{5}{9} \div \frac{2}{3}$

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

Keep, Change, flip!

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

$\frac{23}{9} * \frac{3}{2}$ ($\div 3$, $\div 3$)

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

One step → multiply both sides by inverse

$\frac{3}{2}\left(2\frac{5}{9}\right) = \left(\frac{2}{3}x\right)\frac{3}{2}$

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

$X = \frac{-4}{21} * \frac{7}{6}$ (÷2, ÷2)

$\frac{-2}{21} * \frac{7}{3}$ (÷7)

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

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

$2\frac{8}{9} = \frac{(9*2)+8}{9} = \frac{18+8}{9} = \frac{26}{9}$

$\frac{4}{3}\left(\frac{3}{4}X\right) = \left(\frac{26}{9}\right)\frac{4}{3}$

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

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

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

$(ab^2)^3 = ab^2 * ab^2 * ab^2 = a^{1+1+1} = a^3$

$b^{2+2+2} = b^6$

$(ab^2)^3 = \boxed{a^3 b^6}$

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

$\left(\frac{a^3}{2b^4}\right)^5 = \boxed{\frac{a^{15}}{2^5 b^{20}}} = \boxed{\frac{a^{15}}{32 b^{20}}}$

1.) $(5mp^2)^2 = \boxed{5^2 m^2 p^4}$

2.) $(6a^3b^4)^3 = \boxed{6^3 a^9 b^{12}}$

3.) $\left(\frac{7x^2z^4}{3y}\right)^3 = \boxed{\frac{7^3 x^6 z^{12}}{3^3 y^3}}$

4.) $(2xy^4)^0 = \boxed{1}$

5.) $(m^4 n^3)^2 = \boxed{m^8 n^6}$

6.) $\left(\frac{8ab^3}{c^5}\right)^1 = \boxed{\frac{8^3 a^3 b^{18}}{c^{15}}}$