Apprenticeship Math 12

NOTES: Fraction Review

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Date: Feb. 6

Mixed Numbers ↔ Improper Fractions

Denominator stays the same!

$2\frac{3}{8} = \frac{19}{8}$ (numerator, denominator)

$5\frac{3}{8} = \frac{43}{8}$

$\frac{29}{4} = 7\frac{1}{4}$ (4 goes into 29 7 times; 1 piece left over; $4 \times 7 = 28$, $29 - 28 = 1$)

$\frac{63}{12} = 5\frac{3}{12} = 5\frac{1}{4}$ ($\div 3$)

Adding and Subtracting Fractions

You need a common denominator!

$\frac{1}{2} + \frac{3}{8}$ ($\times 4$)

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

$= \frac{7}{8}$

2, 4, 6, 8, 10...
8, 16, 24...

$\frac{3}{4} - \frac{1}{8}$ ($\times 2$)

$= \frac{6}{8} - \frac{1}{8}$

$= \frac{5}{8}$

$3\frac{5}{8} + 6\frac{3}{4}$ ($\times 2$)

$= 3\frac{5}{8} + 6\frac{6}{8}$

$= 9\frac{11}{8}$

$= 9 + 1\frac{3}{8}$

$= 10\frac{3}{8}$

$3\frac{7}{16} - 1\frac{3}{8}$ ($\times 2$)

$= 3\frac{7}{16} - 1\frac{6}{16}$

$= 2\frac{1}{16}$

Multiplying Fractions

num x num / denom x denom

Change mixed numbers to improper fractions first.

$\frac{6}{1} \times \frac{3}{4} = \frac{18}{4} \div 2 \div 2$

$= \frac{9}{2}$

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

$\frac{1}{2} \times 2\frac{3}{8}$

$= \frac{1}{2} \times \frac{19}{8}$

$= \frac{19}{16}$

$= \boxed{1\frac{3}{16}}$

Dividing Fractions

Change mixed numbers to improper fractions first, then multiply by the reciprocal.

KEEP, CHANGE, FLIP
1st ÷ to × 2nd

$\frac{7}{8} \div \frac{1}{2}$

$= \frac{7}{8} \times \frac{2}{1}$

$= \frac{14}{8} \div 2 \div 2 = \frac{7}{4} = \boxed{1\frac{3}{4}}$

$\frac{1}{2} \div \frac{3}{1}$

$= \frac{1}{2} \times \frac{1}{3}$

$= \boxed{\frac{1}{6}}$

$2\frac{1}{8} \div 2$

$= \frac{17}{8} \div \frac{2}{1}$

$= \frac{17}{8} \times \frac{1}{2}$

$= \frac{17}{16} = \boxed{1\frac{1}{16}}$

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

$= \frac{13}{4} \div \frac{4}{1}$

$= \frac{13}{4} \times \frac{1}{4}$

$= \boxed{\frac{13}{16}}$