

ALG 1: RATIONAL NUMBERS

Objectives: The students will be able to solve problems by adding & subtracting fractions.

Adding & Subtracting Rational Numbers (specifically fractions)

When adding or subtracting fractions, **do NOT change mixed numbers to improper fractions**. You MUST get a common denominator. Some of the fractions include negative numbers. Follow your integer rules.

Practice as notes

Simplify.

$$1) \frac{3 \cdot 5}{4 \cdot 5} + \frac{1 \cdot 4}{5 \cdot 4} = \frac{15}{20} + \frac{4}{20} = \frac{19}{20}$$

$$2) 7\frac{3}{4} - 2\frac{1 \cdot 2}{2 \cdot 2} = 5\frac{1}{4}$$

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

$$3) \frac{2}{12} + \frac{3 \cdot 3}{4 \cdot 3} = \frac{11}{12}$$

$$\frac{2}{12} + \frac{9}{12} = \frac{11}{12}$$



$$4) 4\frac{3 \cdot 2}{7 \cdot 2} - 1\frac{3}{14} = 3\frac{3}{14}$$

$$\frac{6}{14} - \frac{3}{14}$$

$$5) -2\frac{3}{4} + (-\frac{2}{3}) = -2\frac{17}{12}$$

$$-\frac{3 \cdot 3}{4 \cdot 3} + -\frac{2 \cdot 4}{3 \cdot 4} = -\frac{9}{12} + -\frac{8}{12} = -\frac{17}{12}$$

$$-2\frac{17}{12} = -1\frac{5}{12}$$

$$6) 4\frac{3 \cdot 5}{4 \cdot 5} + (-1\frac{1 \cdot 4}{5 \cdot 4}) = +3\frac{11}{20}$$

$$\frac{15}{20} - \frac{4}{20} = \frac{11}{20}$$

$$7) -6\frac{2}{3} + (+3\frac{2}{5}) = -3\frac{4}{15}$$

$$-6\frac{2 \cdot 5}{3 \cdot 5} + (3\frac{2 \cdot 3}{5 \cdot 3}) = -6\frac{10}{15} + 3\frac{6}{15} = -3\frac{4}{15}$$

$$8) -10\frac{3}{5} + (+3\frac{3}{8}) = -7\frac{9}{40}$$

$$-10\frac{3 \cdot 8}{5 \cdot 8} + (3\frac{3 \cdot 5}{8 \cdot 5}) = -10\frac{24}{40} + 3\frac{15}{40} = -7\frac{9}{40}$$

Evaluate if $a = 1\frac{7}{8}$, $b = -4\frac{1}{2}$ and $c = 5\frac{3}{4}$. Substitution must be shown as a separate step.

9. $a - b + c$

10. $a - b - a$

$$9) \begin{aligned} & (1\frac{7}{8}) - (-4\frac{1}{2}) + (5\frac{3}{4}) \\ & 1\frac{7}{8} + 4\frac{1 \cdot 2}{2 \cdot 2} + 5\frac{3 \cdot 2}{4 \cdot 2} = 10 + 2\frac{1}{8} \\ & 10\frac{8}{8} + 2\frac{1}{8} = 12\frac{1}{8} \end{aligned}$$

$$10) \begin{aligned} & (5\frac{3}{4}) - (-4\frac{1}{2}) - (1\frac{7}{8}) \\ & 5\frac{3}{4} + 4\frac{1 \cdot 2}{2 \cdot 2} + (-1\frac{7}{8}) \\ & 9\frac{3}{4} + \frac{2}{4} - 1\frac{7}{8} \\ & 9\frac{5 \cdot 2}{4 \cdot 2} + (-1\frac{7}{8}) \\ & 8 + \frac{10}{8} - \frac{7}{8} = 8\frac{3}{8} \end{aligned}$$