(c) Dividing $\frac{6}{7}$ by what number gives $\frac{4}{3}$?

xpress each answer in simplest form.

(f) $\dfrac{8}{2-\frac{2}{3}}$

(h) $\dfrac{\frac{2}{3}+\frac{5}{6}}{\frac{3}{4}-\frac{1}{2}}$

(d) $\frac{1}{1\cdot2} + \frac{1}{2\cdot3} + \frac{1}{3\cdot4} + \frac{1}{4\cdot5} + \frac{1}{5\cdot6}$.

4.7.6 What is the sum of the reciprocals of the positive divisors of 12? Express your answer as a fraction in simplest form.

4.7.9 Consider the sum $\frac{1}{4} + \frac{1}{4}$. We have $\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$. Notice that the sum, when written in simplest form, has a smaller denominator than either of the two fractions we originally added. Find two fractions in simplest form with *different denominators* such that the sum of the fractions, written in simplest form, has a smaller denominator than either of the original two fractions.

4.8.2 Find the largest integer that is smaller than the sum $2\frac{1}{2} + 3\frac{1}{3} + 4\frac{1}{4} + 5\frac{1}{5} + 6\frac{1}{6}$.

4.8.3 Evaluate $(7a^2 - 11a + 3)(3a - 4)$ for $a = 1\frac{1}{3}$.

4.8.6 Out of each hour of TV programming, $6\frac{1}{2}$ minutes are allocated to commercials. What fraction of each hour is dedicated to television programs? *(Source: MATHCOUNTS)*

4.9 Summary

(l) $6\left(11\frac{2}{3}+4\frac{1}{2}\right)$

4.70 List every fraction that satisfies all four of the following conditions:

(i) The fraction is in simplest form.

(ii) The fraction is greater than $\frac{1}{6}$.

(iii) The reciprocal of the fraction is an integer.

(iv) The numerator of the fraction is positive.

4.72 Simplify the product $\frac{15}{42}\left(-\frac{63}{55}\right)\left(\frac{3}{2}\right)^{-2}\left(\frac{11}{2}\right)^{2}$.

4.74 Express as a fraction in simplest form: $\frac{9}{5}\left(3\frac{1}{3}\cdot\frac{1}{4}-\frac{10}{12}\cdot\frac{1}{8}\right)$.

4.77 The reciprocals of what three different positive integers have sum equal to 1?

4.80 Solve each of the following problems without writing anything.

(a) Which is greater, $\frac{23}{44}$ or $\frac{33}{64}$? **Hints:** 90

4.81 Evaluate in simplest form: $\dfrac{\left(\frac{6}{5}\right)^{3}\left(\frac{25}{36}\right)^{4}}{\left(\frac{5}{6}\right)^{4}}$.

4.85 Find the number halfway between $-2\frac{5}{6}$ and $\frac{3}{5}$ on the number line. **Hints:** 158, 148

4.86 Two 600 ml pitchers contain vinegar. One pitcher is $\frac{1}{3}$ full and the other pitcher is $\frac{2}{5}$ full. Oil is added to fill each pitcher completely, and then both pitchers are poured into one large container. What fraction of the mixture in the large container is vinegar? *(Source: AMC 8)*

4.87★ I climb half the steps in a staircase. Next I climb one-third of the remaining steps. Then I climb one-eighth of the rest and stop to catch my breath. What is the least possible number of steps in the staircase? *(Source: MOEMS)*

4.89★ Loki, Moe, Nick, and Ott are good friends. Ott had no money, but the others did. Moe gave Ott one-fifth of his money, Loki gave Ott one-fourth of his money, and Nick gave Ott one-third of his money. Each gave Ott the same amount of money. What fractional part of the group's money does Ott now have? *(Source: AMC 8)* **Hints:** 58, 120