



Fractions Take Home Problems

*The Division of Water Quality
makes no claim as the accuracy of
any answers provided herein.*

3 Fractions

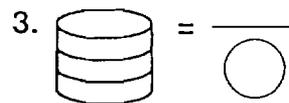
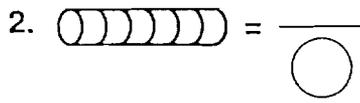
SKILLS CHECK

Complete and score the following skills test. Each section should be scored separately in the box provided to the right. A score of 8 or above indicates you are sufficiently strong in that concept. A score of 7 or below indicates a review of that section is advisable.

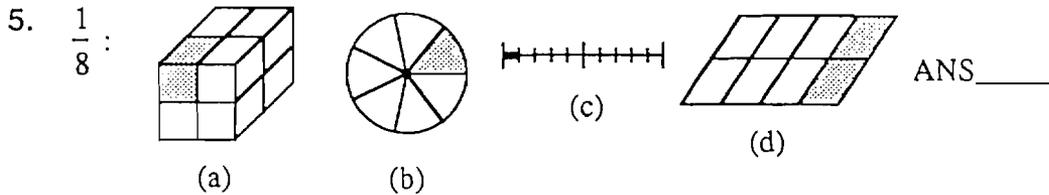
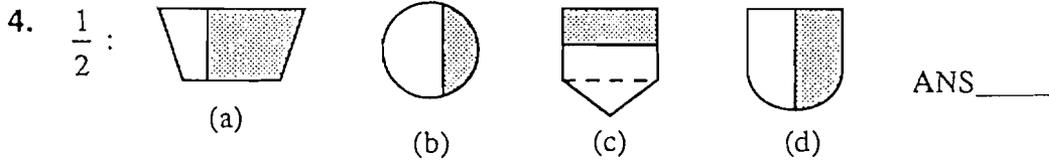
3.1 Naming Fractions

Number
Correct

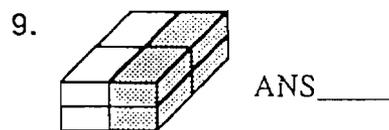
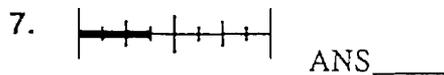
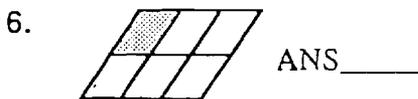
Write the denominator that corresponds to each of the following figures (write answer in circle).



Which figure best represents the fraction given?



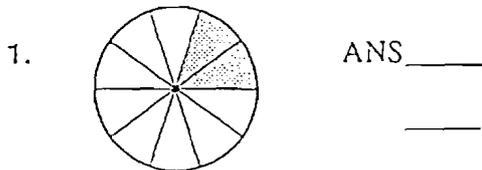
In the following problems, write the fraction that represents the bold or shaded area.



3.2 Equivalent Fractions

 Number
 Correct

-
- Write two equivalent fractions that represent the shaded area in the figure below.



-
- Give an equivalent fraction (using multiplication) for each fraction listed below.

2. $\frac{3}{5} =$

3. $\frac{1}{7} =$

4. $\frac{9}{11} =$

-
- Give an equivalent fraction (using division) for each fraction listed below.

5. $\frac{10}{18} =$

6. $\frac{6}{36} =$

7. $\frac{16}{56} =$

-
- Are the pairs of fractions shown below equivalent fractions? If yes, what is the cross multiplication product?

8. $\frac{2}{3} = \frac{96}{144}$ ANS _____

9. $\frac{3}{14} = \frac{33}{152}$ ANS _____

Cross Product _____

Cross Product _____

10. $\frac{4}{7} = \frac{380}{665}$ ANS _____

Cross Product _____

3.3 Reducing Fractions

 Number
 Correct

-
- Reduce each fraction to lowest terms.

1. $\frac{6}{8} =$ _____

2. $\frac{16}{20} =$ _____

3. $\frac{9}{12} =$ _____

4. $\frac{15}{25} =$ _____

5. $\frac{20}{24} =$ _____

6. $\frac{7}{19} =$ _____

7. $\frac{72}{81} =$ _____

8. $\frac{132}{352} =$ _____

9. $\frac{16}{52} =$ _____

10. $\frac{17}{30} =$ _____

3.4 Lowest Common Denominators

- Find the lowest common denominator for each group of fractions and rewrite the fractions using the LCD.

1. $\frac{2}{3}, \frac{4}{5}$ ANS _____

2. $\frac{5}{8}, \frac{7}{12}$ ANS _____

3. $\frac{1}{6}, \frac{3}{4}$ ANS _____

4. $\frac{1}{8}, \frac{16}{20}$ ANS _____

5. $\frac{2}{9}, \frac{1}{12}$ ANS _____

6. $\frac{1}{10}, \frac{43}{80}$ ANS _____

7. $\frac{1}{4}, \frac{3}{5}, \frac{1}{2}$ ANS _____

8. $\frac{2}{3}, \frac{3}{4}, \frac{1}{6}$ ANS _____

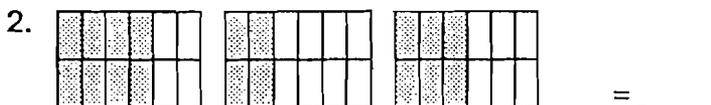
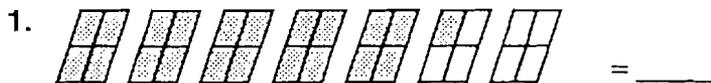
9. $\frac{7}{10}, \frac{1}{2}, \frac{3}{4}$ ANS _____

10. $\frac{2}{3}, \frac{7}{8}, \frac{5}{6}$ ANS _____

Number
Correct

3.5 Improper Fractions and Mixed Numbers

- Write a mixed number for the part that is shaded. Reduce fractions to lowest terms.



- Write each mixed number as an improper fraction.

3. $6\frac{7}{8} =$ _____

4. $12\frac{2}{7} =$ _____

5. $5\frac{3}{5} =$ _____

6. $26\frac{2}{3} =$ _____

- Write each improper fraction as a whole number or mixed number in lowest terms.

7. $\frac{14}{5} =$ _____

8. $\frac{27}{8} =$ _____

9. $\frac{48}{7} =$ _____

10. $\frac{18}{10} =$ _____

Number
Correct

3.6 Addition or Subtraction of Fractions or Mixed Numbers

Number
Correct Add or subtract, as indicated. Reduce answers to lowest terms.

1. $\frac{5}{8} + \frac{3}{10} =$ _____

2. $5\frac{1}{8} - 2\frac{3}{4} =$ _____

3. $\frac{3}{4} + \frac{4}{7} =$ _____

4. $7\frac{4}{5} + 12\frac{2}{5} + 3\frac{1}{5} =$ _____

5. $3\frac{1}{4} - \frac{1}{9} =$ _____

6. $\frac{1}{5} - \frac{1}{8} =$ _____

7. $\frac{5}{6} + \frac{1}{12} =$ _____

8. $10\frac{1}{3} - 5\frac{3}{5} =$ _____

9. If a treatment plant receives $\frac{1}{5}$ of the daily flow from District 1 and $\frac{2}{7}$ of the daily flow from District 2, what fraction of the daily flow is contributed by these two districts?

ANS _____

10. Four sewer mains feed into a treatment plant. If three of the mains contribute relative flows of $\frac{1}{3}$, $\frac{1}{6}$, and $\frac{1}{24}$, what is the fractional flow contributed by the fourth main?

ANS _____

3.7 Multiplication of Fractions or Mixed Numbers

Number
Correct Multiply as indicated, using cancellation of common factors when possible. Reduce answers to lowest terms.

1. $\frac{3}{8} \times \frac{1}{7} =$ _____

2. $\frac{5}{6} \times \frac{7}{9} =$ _____

3. $\frac{9}{10} \times 1\frac{1}{4} =$ _____

4. $8\frac{1}{2} \times \frac{2}{3} =$ _____

5. $\frac{1}{5} \times 2 =$ _____

6. $\frac{13}{9} \times \frac{3}{26} =$ _____

7. $1\frac{1}{9} \times 7\frac{5}{10} =$ _____

8. $52 \times \frac{1}{3} =$ _____

Continued on next page...

3.7 Multiplication of Fractions or Mixed Numbers—Continued

9. Water fills a tank to $\frac{4}{5}$ of its capacity. If the capacity of the tank is 35,000 cu ft, how many cu ft of water are in the tank?

ANS _____

10. On a particular day, the flow to the treatment plant was 7 million gallons. If $\frac{1}{20}$ of the flow was industrial waste, how many million gallons of flow were industrial waste?

ANS _____

3.8 Division by Fractions or Mixed Numbers

- Divide the fractions and mixed numbers given below. Reduce answers to lowest terms.

1. $\frac{15}{16} \div \frac{5}{8} =$ _____

2. $\frac{3}{4} \div \frac{7}{9} =$ _____

3. $4 \div \frac{4}{12} =$ _____

4. $2\frac{1}{2} \div \frac{3}{2} =$ _____

5. $7\frac{2}{9} \div 5\frac{1}{3} =$ _____

6. $\frac{5}{6} \div \frac{2}{9} =$ _____

7. $\frac{11}{12} \div \frac{5}{14} =$ _____

8. $10 \div \frac{5}{6} =$ _____

9. $16\frac{2}{3} \div \frac{3}{4} =$ _____

10. $250 \div \frac{1}{4} =$ _____



Number
Correct

3.9 Combined Calculations with Fractions

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 Number
Correct

- Complete the problems shown below. Reduce answers to lowest terms. (Each problem is worth 2 points.)

$$1. \frac{8\frac{3}{8} \times 5}{\frac{1}{4}} = \underline{\hspace{2cm}}$$

$$2. \frac{\frac{3}{5} + \frac{6}{14}}{5 + \frac{1}{3}} = \underline{\hspace{2cm}}$$

$$3. \frac{1\frac{1}{2} \times \frac{3}{7} \times \frac{1}{3}}{\frac{3}{8} \times 10} = \underline{\hspace{2cm}}$$

$$4. \frac{\frac{1}{6} + \frac{2}{3} + \frac{4}{6}}{\frac{5}{12} - \frac{1}{3}} = \underline{\hspace{2cm}}$$

$$5. \frac{1\frac{2}{3} \times \frac{3}{4}}{\frac{5}{9} \div 6} = \underline{\hspace{2cm}}$$