Date Time

Addition of Fractions

Math Message

Add. Write the sums in simplest form.

1. $\frac{3}{5} + \frac{1}{5} =$ _____
2. $\frac{3}{8} + \frac{1}{8} =$ _____
3. $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} =$ _____
4. $\frac{3}{7} + \frac{5}{7} =$ _____
5. $\frac{7}{10} + \frac{7}{10} =$ _____
6. $\frac{5}{9} + \frac{7}{9} =$ _____
7. $\frac{1}{6} + \frac{2}{3} =$ _____
8. $\frac{2}{3} + \frac{2}{5} =$ _____
9. $\frac{5}{6} + \frac{5}{8} =$ _____

Addition of Mixed Numbers

Add. Write each sum as a whole number or mixed number.

10. $1\frac{3}{5} + 1\frac{1}{5}$
11. $1\frac{1}{2} + \frac{1}{2}$
12. $2\frac{1}{4} + 3\frac{3}{4}$

Fill in the missing numbers.

13. $5\frac{12}{7} = 6\frac{5}{\square}$
14. $7\frac{8}{5} = \square\frac{3}{5}$
15. $2\frac{5}{4} = 3\frac{\square}{4}$
16. $4\frac{5}{3} = 5\frac{\square}{3}$
17. $12\frac{11}{6} = 13\frac{\square}{6}$
18. $9\frac{13}{10} = 10\frac{\square}{10}$

Add. Write each sum as a mixed number in simplest form.

19. $3\frac{2}{3} + 5\frac{2}{3}$
20. $4\frac{6}{7} + 2\frac{4}{7}$
21. $3\frac{4}{9} + 6\frac{8}{9}$

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Addition of Mixed Numbers (cont.)

To add mixed numbers in which the fractions do not have the same denominator, you must first rename one or both fractions so that both fractions have a common denominator.

Example $2\frac{3}{5} + 4\frac{2}{3} = ?$

- Find a common denominator: The QCD of $\frac{3}{5}$ and $\frac{2}{3}$ is $5 * 3 = 15$.
- Write the problem in vertical form and rename the fractions:

$$\begin{array}{r} 2\frac{3}{5} \\ +\ 4\frac{2}{3} \\ \hline \end{array} \rightarrow \begin{array}{r} 2\frac{9}{15} \\ +\ 4\frac{10}{15} \\ \hline \end{array}$$

- Add.

$$6\frac{19}{15}$$

- Rename the sum. $6\frac{19}{15} = 7\frac{4}{15}$

Add. Write each sum as a mixed number in simplest form. Show your work.

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

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

3. $6\frac{1}{3} + 2\frac{4}{9} =$ _____

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

5. $7\frac{1}{4} + 2\frac{5}{6} =$ _____

6. $3\frac{5}{6} + 3\frac{3}{4} =$ _____

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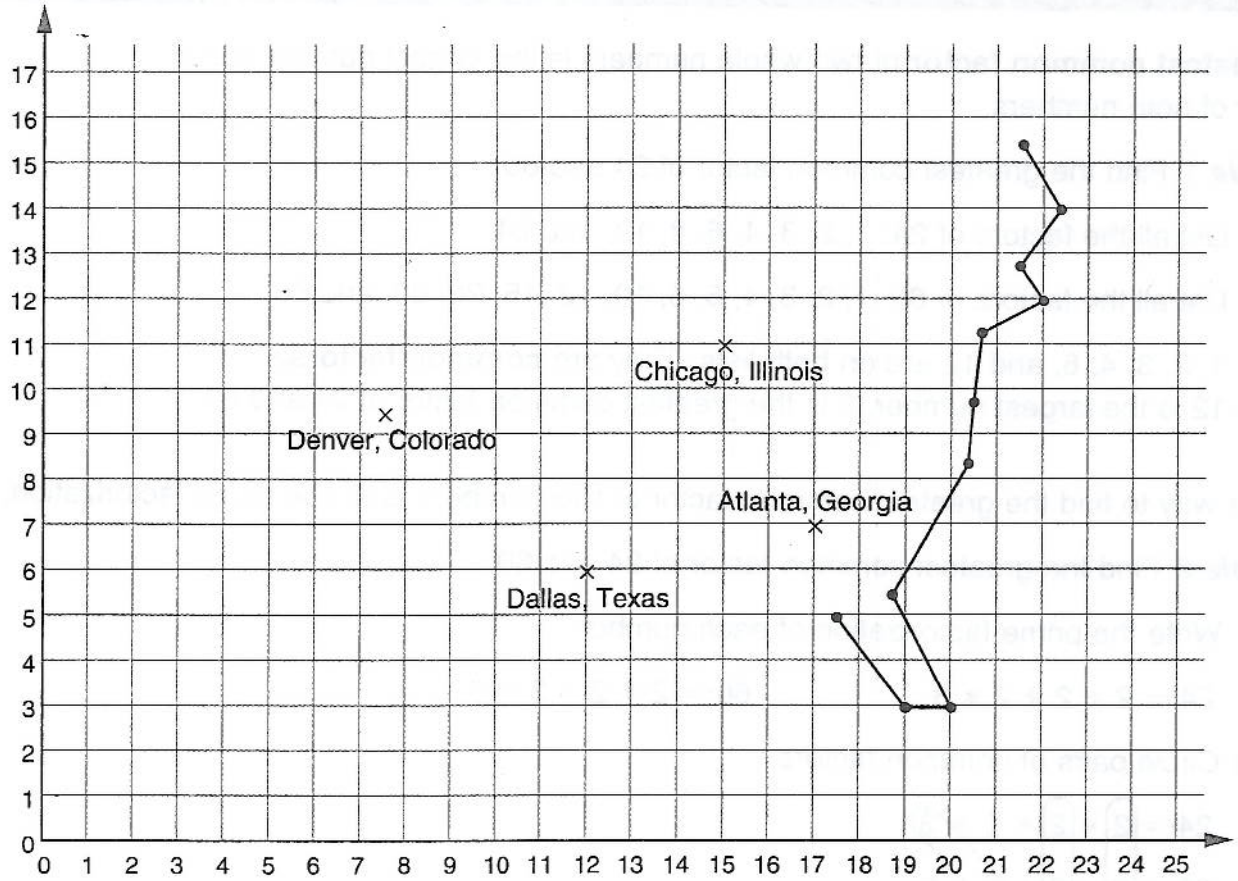
Plotting a Map



1. a. Plot the following ordered number pairs on the grid.

   (21,14), (17,11), (17,13), (15,14), (2,16), (1,11), (2,8), (3,6), (7.5,5.5), (11,2.5), and (12.5,4)

   b. Connect all the points in the same order in which they were plotted. Also connect (12.5,4) to (17.5,5) and (21.5,15.5) to (21,14). When you have finished, you should see an outline map of the continental United States.

2. Write an ordered number pair to locate each city.

   a. Chicago, Illinois (_____ , _____)

   b. Atlanta, Georgia (_____ , _____)

   c. Dallas, Texas (_____ , _____)

   d. Denver, Colorado (_____ , _____)

3. Plot each city on the grid and write in the city name.

   a. Billings, Montana (7.5,13)

   b. Salt Lake City, Utah (5.5,10.5)

4. The U.S.–Mexican border is shown by line segments from (3,6) to (7.5,5.5) and from (7.5,5.5) to (11,2.5). Write the border name on the grid.

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Factor Trees and Greatest Common Factors

The **greatest common factor** of two whole numbers is the largest number that is a factor of both numbers.

Example 1 Find the greatest common factor of 24 and 60.

Step 1 List all the factors of 24: 1, 2, 3, 4, 6, 8, 12, and 24.

Step 2 List all the factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60.

Step 3 1, 2, 3, 4, 6, and 12 are on both lists. They are **common factors.** 12 is the largest number. It is the greatest common factor of 24 and 60.

Another way to find the greatest common factor of two numbers is to use prime factorization.

Example 2 Find the greatest common factor of 24 and 60.

Step 1 Write the prime factorization of each number.

$24 = 2 * 2 * 2 * 3$ $60 = 2 * 2 * 3 * 5$

Step 2 Circle pairs of common factors.

$24 = (2) * (2) * 2 * (3)$

$60 = (2) * (2) * (3) * 5$

Step 3 Multiply *one* factor *in each pair* of circled factors.

The greatest common factor of 24 and 60 is $2 * 2 * 3$, or 12.

1. Make a factor tree for each number below.

a. 10 **b.** 75 **c.** 90

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Factor Trees and Greatest Common Factors (cont.)

2. a. Which prime factors do 10 and 75 have in common? _____

   b. What is the greatest common factor of 10 and 75? _____

3. a. Which prime factors do 75 and 90 have in common? _____

   b. What is the greatest common factor of 75 and 90? _____

4. a. Which prime factors do 10 and 90 have in common? _____

   b. What is the greatest common factor of 10 and 90? _____

5. Use the factor trees in Problem 1 to help you write each fraction below in simplest form. Divide the numerator and denominator by their greatest common factor.

   a. $\frac{10}{75} =$ _____

   b. $\frac{75}{90} =$ _____

   c. $\frac{10}{90} =$ _____

6. What is the greatest common factor of 20 and 25?
   (*Hint:* Use factor trees to help you.) _____

   Write the fraction $\frac{20}{25}$ in simplest form. $\frac{20}{25} =$ _____

Challenge

7. What is the greatest common factor of 1,260 and 1,350? _____

   (*Hint:* 1,260 = 2 * 2 * 3 * 3 * 5 * 7 and 1,350 = 2 * 3 * 3 * 3 * 5 * 5.)

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Factor Trees and Least Common Multiples

The **least common multiple** of two numbers is the smallest number that is a multiple of both numbers.

Example Find the least common multiple of 8 and 12.

Step 1 List the multiples of 8: 8, 16, 24, 32, 40, 48, 56, and so on.

Step 2 List the multiples of 12: 12, 24, 36, 48, 60, and so on.

Step 3 24 and 48 are in both lists. They are common multiples.
24 is the smallest number. It is the least common multiple for 8 and 12.
24 is also the smallest number that can be divided by both 8 and 12.

Another way to find the least common multiple for two numbers is to use prime factorization.

Example Find the least common multiple of 8 and 12.

Step 1 Write the prime factorization of each number:

$8 = 2 * 2 * 2$ $12 = 2 * 2 * 3$

Step 2 Circle pairs of common factors. Then cross out one factor in each pair as shown below.

$8 = \cancel{2} * \cancel{2} * 2$
$12 = 2 * 2 * 3$

Step 3 Multiply the factors that are not crossed out. The least common multiple of 8 and 12 is $2 * 2 * 2 * 3$, or 24.

1. Make factor trees and write the prime factorizations for each number.

a. 15 **b.** 9 **c.** 30

15 = _____ 9 = _____ 30 = _____

2. What is the least common multiple of ...

a. 9 and 15? _____ **b.** 15 and 30? _____ **c.** 9 and 30? _____

Name _____

Multiplying by a Two-Digit Number

Example:

Multiply each digit by the ones place.

```
  1,223
x    23
  3669
```

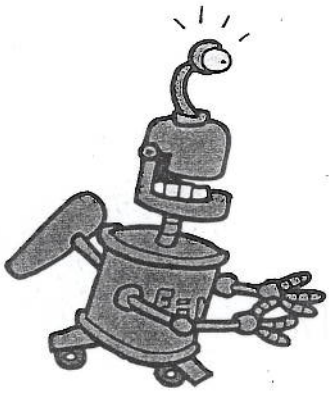
Multiply by the tens place. Place a 0 in the ones column.

```
  1,223
x    23
  3669
 24460
```

Add.

```
  1,223
x    23
  3669
+24460
 28,129
```

Directions: Match each problem in **Column A** with the correct answer in **Column B.**

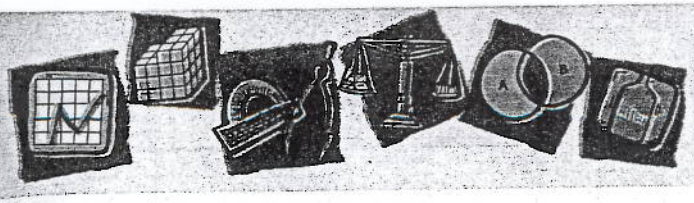


Column A

1. 13 x 23
2. 311 x 32
3. 656 x 11
4. 22 x 31
5. 122 x 44
6. 2,133 x 23
7. 41 x 21
8. 5,112 x 20
9. 212 x 43
10. 34 x 12

Column B

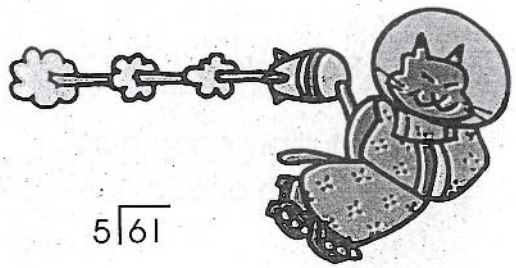
a. 682
b. 861
c. 9,952
d. 9,116
e. 5,368
f. 102,240
g. 299
h. 408
i. 49,059
j. 7,216



Name _____

Dividing by One-Digit Numbers

Directions: Divide. Some problems will have remainders and some will not.



$2\overline{)46}$	$3\overline{)42}$	$4\overline{)84}$	$5\overline{)61}$
$8\overline{)97}$	$5\overline{)28}$	$6\overline{)78}$	$5\overline{)79}$
$4\overline{)27}$	$9\overline{)32}$	$9\overline{)92}$	$5\overline{)70}$
$8\overline{)99}$	$5\overline{)56}$	$4\overline{)64}$	$9\overline{)70}$