Summer Math Packet

You have learned a lot of math this year. This summer, it will be important for you to continue to practice and use the math you know so you will successful in fifth grade math.

This packet has the kinds of things that you need to be sure to remember. You or someone else can make up more problems like these if you need more practice. There are also some ideas for fun ways to use math this summer at home and as you travel. Have a great summer and look for the mathematics all around you!

Practice of Basic Facts for Quick Recall

One goal of fourth grade mathematics instruction is that our students will have automatic recall of multiplication and division facts (as well as additiona dn subtraction facts) by the end of the year. The basic facts are only a small part of all the mathematics ther is to learn, but they are an important tool which make us more efficient and accurate problem solver. Since work with fractions and measurement, as well as the multiplication and division algorithms, is based on knowledge of these facts, it is extremely important that your child enter fifth grade as proficient in these facts as he/she can be at this time.

The following pages include the full set of addition, subtraction, multiplication and division facts. Since mastery of a fact is shown by a quick oral response (within 2 seconds) occurring consistently over time, these pages can be a resource for choosing facts to orally quiz your child. You may want to copy these pages and time your child as he/she completes the page or create sheets with fewer problems using this set as a resource. Flash cards are another good resource for independent practice. The students all have strategies for figuring out the facts; now it is essential that the have the facts mastered for quick recall. For many students, practicing for quick recall of the facts over the summer is necessary to maintain the progress they have gained during the school year.

What follows are reminders of thoughts and suggestions, based on research about learning and practicing basic facts. We hope you find them helpful as you work with your child this summer.

- Mastery of a fact is shown by a quick oral response (within 2 seconds) occurring consistenlty over time.
- A "Facts I Know" cross out chart can be maintained so you and your child know which facts need the most work
- Practice sessions should be short (3 - 5 minutes).
- Treat only a few facts in any given session, including some mastered facts for reviews and some not yet mastered facts for practice. Practice only one operation in a given session.
- "Less is best, more often." A daily five-minute practice session is better than a longer one once a week (in the same way that consistent study over a semester is more effective than cramming for an exam).
- Find odd moments to call out a few facts, such as in the car at a stoplight.
- Set a timer for 3-5 minutes for your child to go through flash cards independently. He/she could make 2 stacks, one for known facts, one for "to work on" facts, and go back through the latter stack until the timer goes off.
- Keep sessions positive. For many children, achieving the goal of consistent quick recall requires many short practice sessions occurring regularly over time. Praising quality effort is as important as praising quality responses, to encourage the child's commitment to this task.
- Utilize websites that engage the students and make the multiplication work seem not such drudgery. www.mrnussbaum.com and www.multiplication.com have activities that 4th graders enjoy.

B 6 2

Forty multiplication facts

$$\begin{array}{c} 7 \\ \times 3 \\ \hline \end{array} \qquad \begin{array}{c} 4 \\ \times 9 \\ \hline \end{array} \qquad \begin{array}{c} 2 \\ \times 9 \\ \hline \end{array} \qquad \begin{array}{c} 9 \\ \times 9 \\ \hline \end{array} \qquad \begin{array}{c} 7 \\ \times 8 \\ \hline \end{array} \qquad \begin{array}{c} 5 \\ \times 3 \\ \hline \end{array} \qquad \begin{array}{c} 9 \\ \times 7 \\ \hline \end{array} \qquad \begin{array}{c} 9 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{c} 5 \\ \times 9 \\ \hline \end{array} \qquad \begin{array}{c} 8 \\ \times 2 \\ \hline \end{array} \qquad \begin{array}{c} 4 \\ \times 8 \\ \hline \end{array} \qquad \begin{array}{c} 3 \\ \times 6 \\ \hline \end{array} \qquad \begin{array}{c} 6 \\ \times 2 \\ \hline \end{array} \qquad \begin{array}{c} 7 \\ \times 7 \\ \hline \end{array} \qquad \begin{array}{c} 8 \\ \times 3 \\ \hline \end{array} \qquad \begin{array}{c} 6 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{c} 8 \\ \times 7 \\ \hline \end{array} \qquad \begin{array}{c} 7 \\ \times 2 \\ \hline \end{array} \qquad \begin{array}{c} 9 \\ \times 0 \\ \hline \end{array} \qquad \begin{array}{c} 7 \\ \times 9 \\ \hline \end{array} \qquad \begin{array}{c} 9 \\ \times 8 \\ \hline \end{array} \qquad \begin{array}{c} 5 \\ \times 6 \\ \hline \end{array} \qquad \begin{array}{c} 5 \\ \times 7 \\ \hline \end{array} \qquad \begin{array}{c} 7 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{c} 5 \\ \times 2 \\ \hline \end{array} \qquad \begin{array}{c} 9 \\ \times 4 \\ \hline \end{array} \qquad \begin{array}{c} 7 \\ \times 6 \\ \hline \end{array} \qquad \begin{array}{c} 6 \\ \times 9 \\ \hline \end{array} \qquad \begin{array}{c} 1 \\ \times 4 \\ \hline \end{array} \qquad \begin{array}{c} 8 \\ \times 5 \\ \hline \end{array} \qquad \begin{array}{c} 4 \\ \times 7 \\ \hline \end{array} \qquad \begin{array}{c} 8 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{c} 8 \\ \times 6 \\ \hline \end{array} \qquad \begin{array}{c} 9 \\ \times 3 \\ \hline \end{array} \qquad \begin{array}{c} 6 \\ \times 5 \\ \hline \end{array}$$
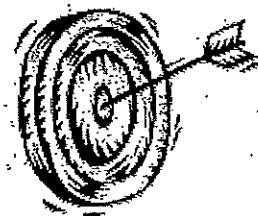
Name_____ Date_____

Addition and Subtraction Practice

Practice addition and subtraction of numbers up to 6 digits.
Be sure to practice subtracting from numbers that have
zeroes in them. Check your work with a calculator or by
validating in one of the ways that you know.

Here are some sample problems. You and your parents can
make up many more. You can also find workbooks at book
stores and department stores that have exercises like this.

Hit the target!
Be accurate!

Add or Subtract. Pay attention to the sign!

6,249	2,045	3,806	8,395
+ 2,843	+3,978	- 1,079	- 7,518

5,802	6,553	7,403	6,551
+ 3,498	+3,899	- 1,079	- 3,518

535,806	296,843	619,453	80,003
+ 86,263	+155,927	− 43,087	− 18,328

876,535	409,334	503,774	42,000
+ 35,773	+563,786	− 35,869	−27,835

Place Value Practice

Write the numbers in order from least to greatest.

6,849;   6,489;   4,698;   9,468

_____

820,425;   802,425;   805,825;   850,528

_____
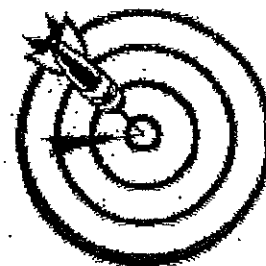
Hit the mark!

Compare. Write < or > in the box.

36,659 [ ] 36,695   41,931 [ ] 41,913

856,700 [ ] 865,700   765,203 [ ] 765,023

Think: Which digit tells you which number is larger or smaller?

Solve the sentences. Write a compact number in each box.

18 tens = [ ]   43 (10) = [ ]

18 hundreds = [ ]   17 (100) = [ ]

18 thousands = [ ]   40 (1000) = [ ]

                                 40 (100) = [ ]

47 hundreds = [ ]   91 (100) = [ ]

47 thousands = [ ]   62 (1000) = [ ]

47 ten thousands= [ ]   78 (10,000) = [ ]

Place Value Practice

Write the compact notation for each number. You may have to regroup.

5(100,000) + 4(10,000) + 9(1,000) + 0(100) + 3(10) + 8 = _____

8(10,000) + 15(100) + 9(10) + 3 = _____

4(100,000) + 13(1,000) + 26(10) + 5 = _____

8(10) + 7(1000) + 16 + 2(10) = _____

23(100) + 4(10,000) + 17 = _____

Tell the place of the underlined digit in each number.

37,509_____   862,610_____

704<u>2</u> _____   154,<u>2</u>93 _____

Write each number.

10 more than 1,975_____

100 more than 25,698_____

1,000 more than 739,560   _____

Fill in the blanks about each number.

61,248

_____is in the tens place.

_____is in the ten thousands place.

_____is in the thousands place.

876,093

_____is in the ten thousands place.

_____is in the hundred thousands place.

_____is in the hundreds place.

Number Theory

We have learned a lot about numbers and operations this year. Review these terms and answer questions like the ones below.

factors   multiples   prime numbers   square numbers

List the factors for each number.

18_____   24_____

28_____   15_____

Give five multiples for each number.

7_____   3_____

9_____   8_____

Which of these numbers is prime?   (Tell someone what a prime number is.)

1 . 2 . 3 . 4 . 5 . 6 . 7 . 8 . 9 . 10 . 11 . 12 . 13

14 . 15 . 16 . 17 . 18 . 19 . 20 . 21 . 23 . 25 . 27 . 28 . 29

Tell someone why 1 is not a prime number.

Which of these numbers is a square number?
(Example: 100 is a square number because it is 10 x 10.)

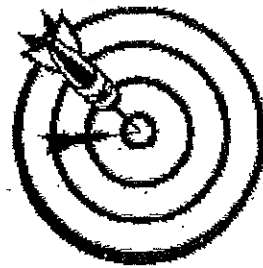1 . 2 . 4 . 5 . 6 . 9 . 10 . 12 . 15 . 16 . 20 . 25 . 30 . 36

Solve each problem using order of operations. Show your work using the triangle format.   You can make up other problems like these.

$7 \times 5 + 18 \div 3$ $21 \div (11 - 4) + 9 \times 8$ $14 + 8 \times 3 - 18$

Multiplication Practice

You have learned many ways to work out a multiplication problem. You know how to draw an array to represent the problem; you may know how to use lattice multiplication to solve the problem; you know how to write all the subproducts in a multiplication algorithm, and you may have worked with using the compact multiplication algorithm. To solve the multiplication problems on the back of this sheet, use one of these two ways:

One way
Multiply. List all the subproducts and add.

```
H T O
2 3 5
x   3
  1 5   (3 x 5)
  9 0   (3 x 30)
6 0 0   (3 x 200)
7 0 5
```

```
  T O
  4 5
x 7 8
  4 0   (8 x 5)
3 2 0   (8 x 40)
3 5 0   (70 x 5)
2 8 0 0 (70 x 40)
3 5 1 0
```

Another way
Multiply without listing the subproducts.

```
H T O
2 1
2 4 3
x   6
1 4 5 8 ◄── Multiply the ones and regroup.
  ▲ ▲ ───── Multiply the tens and regroup.
  └──────── Multiply the hundreds.
```

```
  3 7
x 2 4
1 4 8   (4 x 37)
7 4 0   (20 x 37)
8 8 8
```

In order to be accurate in multiplication, you must know how to do the following kinds of problems. Try these. You should be able to do them mentally. Have someone check them for you or check with a calculator. Then make up other problems like these to keep your skills sharp.

5 x 70 = [   ]   30 x 6 = [   ]   7 x 40 = [   ]

80 x 40 = [   ]   60 x 50 = [   ]   70 x 30 = [   ]

30 x 500 = [   ]   400 x 30 = [   ]   600 x 400 = [   ]

Note to parents: If your child is more comfortable writing all the subproducts at this point, that is the method he or she should use. Some fourth graders, but by no means all, are comfortable with the compact form. It is most important that your child understand the method he or she is practicing now. Proficiency with the compact form is not expected until during their fifth grade year. The following are example problems. You and your child can make up many more. Solutions can be checked with a calculator.

Multiply.

<u>Use the way that works best for you.</u>
Make up other problems like these. Check your solution with a calculator.

28	57	82	95	63
x 4	x 3	x 8	x 7	x 9

863	902	561	374
x 5	x 7	x 3	x 6

76	45	83	67	92
x27	x38	x43	x74	x39

63	81	39	47	28
x52	x94	x27	x68	x17

Division

In this example, the first estimates are the "best" ones.

```
        32
   3 ) 96
      90    30
       6
       6     2
            32
```

In this example, the first estimate is low, but the student can continue with the method.

```
       784 r.3
  5 ) 3923
     3000    600
      923
      500    100
      423
      400     80
       23
       20      4
        3    784
```

Many of you learned the traditional algorithm; please practice it as well.

Use the forgiving method to solve division problems like these.
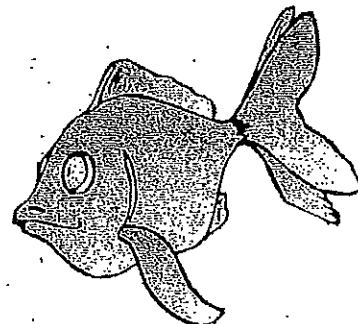Make up others and have your parents check your answers.

```
7 ) 1 6 8          3 ) 8 8 8          5 ) 4 2 3 0
```

Name: _____

Long Division
Three Digit Dividends, 2 and 3-Digit Quotients, Remainders

a.

$$6 \overline{| 9 \quad 3 \quad 9 }$$

b.

$$4 \overline{| 1 \quad 5 \quad 4 }$$

c.

$$4 \overline{| 2 \quad 9 \quad 5 }$$

d.

$$3 \overline{| 3 \quad 2 \quad 8 }$$

e.

$$7 \overline{| 7 \quad 5 \quad 0 }$$

f.

$$3 \overline{| 7 \quad 4 \quad 3 }$$

g.

$$9 \overline{| 8 \quad 4 \quad 0 }$$

h.

$$8 \overline{| 4 \quad 2 \quad 9 }$$

i. There are 8 fish tanks in the pet shop. They just
received an order of 216 goldfish. The owner of the
pet shop wants each tank to have the same number
of fish. How many goldfish will each tank have
in it?

Show your work and label your answer.

ans: _____

Rounding Numbers

Round to the nearest ten.

1. 12 _____   2. 37 _____   3. 61 _____   4. 153 _____

5. 379 _____   6. 86 _____   7. 22 _____   8. 97 _____

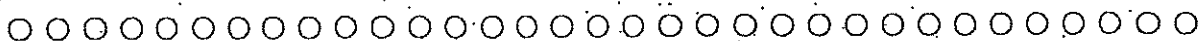Round to the nearest hundred or the nearest dollar.

9. 316 _____   10. $1.29 _____   11. $41.60 _____

12. 989 _____   13. 1,121 _____   14. $3.44 _____

15. $23.62 _____   16. 4,320 _____   17. 349 _____

18. 501 _____   19. 7,824 _____   20. 672 _____

Round to the nearest thousand. Ring the answer.
Write the letter of each answer in the blanks.

21. 8,726	22. 10,112	23. 3,750
9,000 8,000 W I	11,000 10,000 F O	4,000 3,000 N A
24. 1,126	25. 26,212	26. 81,989
1,000 2,000 D C	27,000 26,000 B E	82,000 81,000 R S
27. 6,925	28. 5,555	29. 4,026
6,000 7,000 T F	5,000 6,000 A U	4,000 5,000 L E

___ ___ ___ ___ ___ ___ ___ ___ ___
21. 22. 23. 24. 25. 26. 27. 28. 29.

○ ○

Round to the nearest ten.

a. 33 _____   b. 47 _____   c. 56 _____   d. 19 _____

e. 408 _____   f. 794 _____   g. 412 _____   h. 375 _____

Round to the nearest hundred.

i. 144 _____   j. 286 _____   k. 525 _____   l. 853 _____

m. 1358 _____   n. 4845 _____   o. 2498 _____

p. 17,682 _____   q. 11,736 _____   r. 108,206 _____

Round to the nearest thousand.

s. 7134 _____   t. 6280 _____   u. 3784 _____

v. 13,625 _____   w. 72,318 _____   x. 82,318 _____

Round to the nearest ten thousand.

y. 74,500 _____   z. 309,246 _____

○ ○
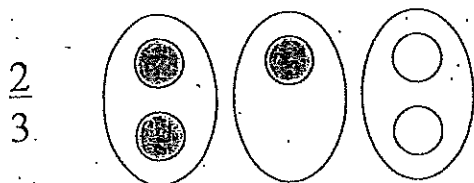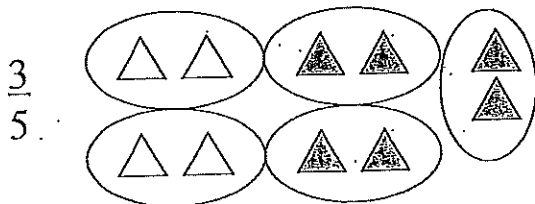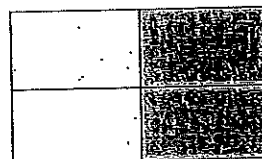
Fractions

Note to parents: Fourth graders should be well grounded in the concept that fractional parts of a whole must be equal in size. They have had experiences with dividing a region into fractional parts in different ways. Any opportunity that occurs during everyday activities to divide sets or regions into equal parts would be helpful review. They have also begun an exploration of equivalent fractions, particularly related to rates. For example, if gumballs are being sold at a rate of 3 gumballs for 8¢ (3/8), then two sets at this rate would be 6/16 and three sets would be 9/24. The fractions change, but the value (the base rate) does not. This exploration led to the understanding that multiplying or dividing the numerator and denominator of a fraction by the same number gives another fraction of equal value. The following examples provide practice in this skill as well as in the basic recognition of fractional parts. You may make up similar activities for your child.
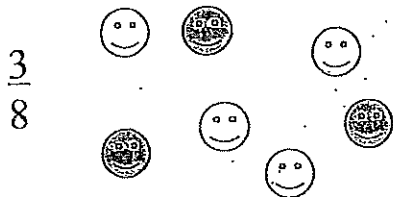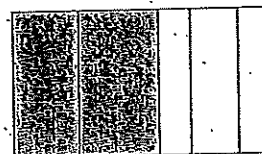
Tell if the fraction correctly identifies the shaded part of each set or region. If it does not, tell why.
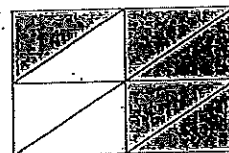
$\frac{2}{3}$

$\frac{2}{4}$

$\frac{3}{5}$

$\frac{2}{5}$

$\frac{3}{8}$

$\frac{5}{8}$

Give the equivalent fraction.

| $\frac{6}{8} = \frac{\square}{24}$ | $\frac{4}{20} = \frac{\square}{5}$ | $\frac{9}{18} = \frac{3}{\square}$ | $\frac{10}{30} = \frac{\square}{3}$ |

Name_____ Date_____

Fill in the box in each sentence.
You may use objects or pictures to help.

a. $\frac{2}{9}$ of 36 = □

b. $\frac{4}{5}$ of 35 = □

c. $\frac{2}{3}$ of 21 = □

d. $\frac{3}{7}$ of 35 = □

e. $\frac{5}{8}$ of 16 = □

f. $\frac{1}{4}$ of 100 = □

g. $\frac{7}{9}$ of 27 = □

h. $\frac{3}{4}$ of 60 = □

i. $\frac{1}{7}$ of 56 = □

j. $\frac{2}{5}$ of 40 = □
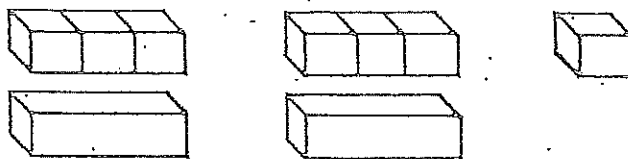
k. $\frac{7}{10}$ of 80 = □

l. $\frac{2}{3}$ of 30 = □

Name_____ Date_____

Renaming Fractions as Mixed Numbers

Whole numbers and mixed numbers can be used to name fractions.

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

$\frac{7}{3}$ = 1 + 1 + $\frac{1}{3}$ = $2\frac{1}{3}$

Complete.

1. $\frac{23}{6}$ = $\frac{6}{6}$ + $\frac{\square}{6}$ + $\frac{\square}{6}$ + $\frac{\square}{6}$

$\frac{23}{6}$ = 1 + $\square$ + $\square$ + $\frac{\square}{6}$ = $\underline{\quad}\frac{\square}{6}$

2. $\frac{11}{2}$ = $\frac{2}{2}$ + $\frac{\square}{2}$ + $\frac{\square}{2}$ + $\frac{\square}{2}$ + $\frac{\square}{2}$ + $\frac{\square}{2}$

$\frac{11}{2}$ = 1 + $\square$ + $\square$ + $\square$ + $\square$ + $\frac{\square}{2}$ = $\underline{\quad}\frac{\square}{2}$

Rename each fraction as a mixed number.

3. $\frac{13}{10}$ = _____   4. $\frac{21}{5}$ = _____   5. $\frac{33}{10}$ = _____   6. $\frac{17}{7}$ = _____

7. $\frac{25}{6}$ = _____   8. $\frac{17}{2}$ = _____   9. $\frac{29}{4}$ = _____   10. $\frac{34}{5}$ = _____

11. $\frac{5}{3}$ = _____   12. $\frac{14}{5}$ = _____   13. $\frac{11}{3}$ = _____   14. $\frac{30}{7}$ = _____

15. $\frac{17}{5}$ = _____   16. $\frac{21}{4}$ = _____   17. $\frac{5}{4}$ = _____   18. $\frac{28}{5}$ = _____

19. $\frac{19}{2}$ = _____   20. $\frac{33}{4}$ = _____   21. $\frac{17}{10}$ = _____   22. $\frac{19}{3}$ = _____

Finding the Area of a Rectangular Region

Note to Parents: Fourth graders have learned how to measure a rectangular region to find its area. Here are a few problems that can be used for practice, but the very best practice will come from actually measuring rectangular spaces and finding their areas. Your child should choose an appropriate unit for measuring the space (inches, feet, etc.), round measurements to the nearest unit (this is very important so that they are not trying to multiply fractions), and multiply the length times the width to find the area. It may be helpful for the child to draw a picture of the space. A calculator may be used to do the multiplication or this may be an opportunity to practice multiplication skills unless the numbers are too large.

Solve each problem.

1. Find the area of this region:

    4 cm

    11 cm

2. Find the area of a table top that is 21 decimeters by 13 decimeters.

3. Francine was painting one wall of her bedroom. The wall was 9 feet high by 15 feet wide. She has enough paint to cover 120 square feet. Does she have enough paint? Show how you know.

4. Jim bought a new door that measured 30 inches by 60 inches. What is the area of the door in square inches?

5. Dora's bedroom floor measures 6 meters by 5 meters. How many square meters of carpet should she buy to cover the floor?

6. Farmer John has a pasture that measured 45 yards by 63 yards. What is the area of his pasture?

Name_____ Date_____

Choosing the Operation (+, −, ×, ÷)

Decide how to solve each problem. Write an open sentence. Then solve.

1. There are 2 senators from every state in the United States Senate. There are 50 states. How many senators are there in all?

   _____

2. The U.S. House of Representatives has 435 members. California has 45 representatives. This number is 9 times as many as Kansas has. How many representatives does Kansas have?

   _____

3. Wisconsin has 9 representatives. Texas has 3 times as many representatives as Wisconsin has. How many representatives does Texas have?

   _____

4. Ohio has 21 representatives. This is 3 times as many as Alabama has. How many representatives does Alabama have?

   _____

5. There are 435 representatives. Florida has 19 representatives. How many representatives are *not* from Florida?

   _____

6. The largest groups of representatives come from California, New York, and Texas. You know how many come from Texas and California. New York has 34. How many representatives come from these 3 states?

   _____

7. The leader of the House of Representatives is called the Speaker. Henry Clay was the Speaker of the House 5 times. Sam Rayburn was the Speaker twice as many times. How many times was Rayburn the Speaker?

   _____

8. Wyoming was the first state to let women vote. This happened in 1869. In 1925, Wyoming had the first woman governor. How many years apart were these 2 events?

   _____

9. North Dakota and South Dakota each have 1 representative. Virginia has 5 times as many representatives as both Dakotas have. How many representatives does Virginia have?

   _____

10. Connecticut has 2 women representatives. It has 2 times as many men who serve as representatives. How many of its representatives are men?

   _____

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1. In which situation below would you use multiplication to find an answer? (You do not need to work the problems.)

A: Fred, Jane, and Tawny each had 5 record albums. How many albums did they have?

B: Jenny and the Jets sold 2,000 albums on Monday, 3,000 on Tuesday, and 4,000 on Wednesday. How many did they sell during those three days?

C: A record store received 50 albums but had to send back 15. How many did they keep?

_____

2. Ellie is 15 years old, Louise is 8 years old, and Hannah is 12 years old. What is the difference between Louise's and Hannah's ages?

Write a number sentence. Then solve.

_____

3. 5,648 + 4,707 = _____

4.
$$84,003$$
$$-\,36,908$$

5. $700.30 − $156.89 = _____

6.
$$43,208$$
$$70,596$$
$$81,132$$
$$+\,27,995$$

7. At the movies, Roberto's mom spent $5.75 on two drinks and one bag of popcorn. If each drink costs $1.75, how much did the popcorn cost?

_____

If she paid with a ten-dollar bill, how much change should Roberto's mom get back?

_____

(Show your work.)

Solve.

① In the morning, Alex spends 25 minutes getting ready for school, an hour delivering papers, and 15 minutes walking to school. If Alex must be at school by 8:00, what time should he wake up?
(Show your work.)   _____

② Find two 3-digit numbers whose sum is 251.

③ Find two numbers whose difference is 79.

④ Manny buys a hamburger for $3.99, a baked potato for $1.79, and a drink for $1.29. He gives the salesclerk a $10 bill. How much change will he receive?
(Show your work.)   _____

Name the least number of coins and bills that he could receive in change.

⑤ Lin buys 3 gallons of bubble bath at $3.39 each. If Lin gives the salesclerk a $20 bill, how much change will she receive?
(Show your work.)   _____

Name the least number of coins and bills that he could receive in change.