## HELPFUL HINTS:

## Steps to solving Bar Model problems:

1. Reread the problem
2. Decide who
3. Decide what
4. Draw initial bar
5. Reread and adjust bars
6. Decide question mark
7. Work the computation
8. Write the answer in a complete sentence

## Tips for Addition Problems:

- With addition problems, it's helpful to draw the unit bars on the smaller side so you can add to them as you adjust the units.


## Tips for Subtraction Problems:

- Most subtraction problems require you to draw a longer unit bar to begin.
- It's really helpful to identify the segment of the unit you're subtracting and draw a diagonal slash through the value. This is a great visual reminder.
- We usually place numerical values outside the unit bars with subtraction because we manipulate the inside of the units with sections and slashes.


## VOCABULARY:

digit - A number is made up of digits. In the number 2,478 the digits are $2,4,7$ and 8 . standard form - When a number is written with digits $-2,478$ is the standard form of the number 2,478.
word form - When a number is written with words - two thousand, four hundred and seventy-eight is the word form for 2,478 .
expanded form - When a number is written with expanded place value - 2,000 + 400 + $70+8$ is the expanded form of 2,478 .
rounded $-2,476$ is 2,500 when rounded to the nearest hundred.
estimate - A number close to the exact number.
reasonable - An estimated answer is reasonable when it is close to the actual answer.
overestimate - An estimated answer that is greater than the actual sum.
leading digit - The digit in a given number with the greatest place value.
front-end estimation - Estimation that uses the leading digits to estimate the sum and difference.
number bond - A form of expressing a given number as a whole and two parts.

sum - The answer in an addition problem.
difference - The answer in a subtraction problem.
product - The answer in a multiplication problem.
quotient - The answer in a division problem.
regroup - To use place value to change 10 ones into 1 ten, 10 tens into 1 hundred, 10 hundreds into 1 thousand, and so on.
bar model - a model made of horizontal bars used to represent parts and wholes in a problem.

commutative property of multiplication - Changing the order of the factors in a multiplication sentence does not change the answer.
associative property of multiplication - Changing the way the factors are grouped in a multiplication sentence does not change the answer.
multiplicative property of one - Any number multiplied by 1 equals that number.
multiplicative property of zero - Any number multiplied by 0 equals 0 .
array model - symbols arranged in rows in columns.
area model - identical small squares arranged in a grid.
remainder - A remainder is the number left over when a number cannot be divided equally.

## Section 1:

Express number in word form:

1. 6,257
2. 8,540
3. 7,601

Add. Use mental math.
4. $28+56=$ $\qquad$
5. $34+49=$ $\qquad$
6. $17+67=$ $\qquad$
7. $58-47=$ $\qquad$
8. $155-53=$ $\qquad$

Express number in expanded form:
9. 9,304
10.3,052
11.1,643

Order the numbers from least to greatest.

| 12. 9,143 | 9,034 | 9,134 |
| :---: | :---: | :---: |
| 13. 3,256 | 3,279 | 3,238 |
| 14. 7,425 | 7,429 | 7,420 |

$\qquad$

Find each missing number.
15.10 more than 2,863 is $\qquad$ .
16.100 more than 829 is $\qquad$ .
17.1,000 less than 4,059 is $\qquad$ .

Complete each number pattern.
18. $8,625 \quad$ —,725 $\quad$ 9,025
19. 862

962
1,162
20. 6,215 $\qquad$
6,015 $\qquad$

Solve.
21. A grocer sells 548 apples and 470 oranges.

Estimate the number of fruits he sells altogether.
22. Circle the mystery number. Use the clues to help you.
$\begin{array}{lllll}118 & 96 & 61 & 47 & 54\end{array}$
Clue 1: The digits in the number add up to a number greater than 10. Clue 2: If I count in steps of 2, I will get this number.

## Section 2:

Subtract. Use mental math.

1. $94-32=$ $\qquad$
2. $78-53=$ $\qquad$
3. $72+25=$ $\qquad$
4. $65+38=$ $\qquad$
5. $51-19=$ $\qquad$

## Express number in standard form:

6. eight thousand, six hundred twenty-nine
7. four thousand, seven hundred thirty
8. seven thousand, ten

Solve.
9. $52 \times 6=$ $\qquad$
10. $113 \times 3=$ $\qquad$
11. $21 \times 7=$ $\qquad$

Complete by rounding each value to nearest ten and hundred.

$$
\begin{array}{lll}
\text { value } & \text { nearest ten } & \text { nearest hundred }
\end{array}
$$

12. 139
13. 658
14. 1,099
15. What number is 500 less than 6,125 ?
answer $\qquad$
16. Jesse bought a toy for $\$ 28$.

She paid $\$ 19$ more for a model car than she paid for the toy.
How much did Jesse pay in all?
a. $\$ 47$
b. $\$ 57$
c. \$65
d. $\$ 75$
17. What is the smallest four digit number that can be formed with the digits $3,8,0,7$ ? answer $\qquad$

Solve. Draw a bar model to help.
18. Meena, Fiona and Jacob share a total of 320 seashells.

Fiona gets 140 seashells.
Meena gets 90 seashells.
How many seashells does Jacob get?
19. Mrs. Johnson buys 68 posts and some wire to make a fence. Each post costs $\$ 7$. The wire costs $\$ 46$. How much does Mrs. Johnson pay for the posts and the wire?

## Section 3:

Solve.

1. $635+249=$ $\qquad$
2. $508+271=$ $\qquad$
3. The sum of 3,684 and 2,700 is $\qquad$ .

Solve. Show your work and use bar models to help.
4. Mrs. Tan buys a duck and a chicken. The mass of the duck is 2,300 grams. The mass of the chicken is 1,675 grams. How much heavier is the duck than the chicken?
5. At Hillside Elementary School, there are 1,253 boys and 1,624 girls. How many students are there at the school?
6. Complete the number pattern.
$30 \quad 80 \quad 180 \quad 330$
7. I am a 3-digit number that is less than 500 .

My ones digit is twice the hundreds digit.
The sum of the three digits is 14 .
What number am I?
Answer: $\qquad$
8. $45+5=$ $\qquad$ - 100. The missing number is $\qquad$ .
a. 30
b. 70
c. 130
d. 150
9. In the number 8,296 what is the value of the digit 2 ?

Answer: $\qquad$
10. Subtract 989 from the sum of 1,857 and 2,465 .

Answer: $\qquad$

Solve. Show your work and use bar models to help.
11.Allison jogs 3,860 meters and Calvin jogs 5,470 meters. How far do they jog altogether?

Solve. Show your work.
12. Marbles per bag:

| Bag A: | Bag B: | Bag C: | Bag D: | Bag E: |
| :--- | :--- | :--- | :--- | :--- |
| 1,138 2,786 | 1,412 | 4,354 | 5,588 |  |
| Jane takes Bag B and Bag D. |  |  |  |  |
| Karen takes Bag E. |  |  |  |  |

a. Who has more marbles?
b. How many more marbles does she have?

Solve.
13. Add 2,659 to 784 . The sum is $\qquad$ more than 555 .
b. 2,878
b. 2,888
c. 2,988
d. 3,988
14. 2,573
$+1,989$
15. When you $\qquad$ 23 ones, you get 2 tens and $\qquad$ ones.

## Section 4:

Multiply mentally.

1. $4 \times 30=$ $\qquad$
2. $9 \times 200=$ $\qquad$
3. $8 \times 8=$ $\qquad$
4. $5 \times 8=$ $\qquad$
5. $7 \times 70=$ $\qquad$
6. $9 \times 9=$ $\qquad$
Solve. Show your work and use bar models to help.
7. A refrigerator costs 5 times as much as a television. The television costs $\$ 429$. What is the cost of the refrigerator?
8. The students in class 3 A buy 500 packets of seeds to start an eco-garden. On Monday, they use 27 packets of seeds. On Tuesday, they use twice as many packets as on Monday. How many packets of seeds do the students have left?
9. A store records the sales of its toys in the table below.

| MONTH | NUMBER OF TOYS SOLD |
| :--- | :--- |
| January | 180 |
| February | 90 more than in January |
| March | 3 times as many as in February |
| April | 320 fewer than in March |

a. How many toys are sold in February?
b. How many toys are sold in March?
c. How many toys are sold in April?
d. How many toys are sold altogether during the four months?
10. 358
$\times 2$
11. 152
$\times 6$
12. 126
$\times 7$

Solve. Show your work and use bar models to help.
13. Sophia prepares 38 cheese sandwiches and 46 tuna sandwiches.

She puts the sandwiches equally onto 3 platters.
How many sandwiches are on each platter?
14. Maria has $\$ 500$. She buys a pair of shoes for $\$ 108$. She gives the rest of the money to her 4 nieces. Her nieces share the money equally.
a. How much money does Maria give to her 4 nieces?
b. How much does each niece get?
15. In 5,786 the digit 5 has the same value as $\qquad$ .
a. $5 \times 1$
b. $5 \times 10$
c. $5 \times 100$
d. $5 \times 1,000$
16. What is the product of 346 and 9 ?
a. $300+14$
b. $3,000+14$
c. $300+100+4$
d. $3,000+100+14$
17. Divide 87 by 6 . The remainder is $\qquad$ .
a. 2
b. 3
c. 4
d. 5
18. Find the greatest product of a 3-digit number and a 1-digit number using each digit below only once. (3 56
7)


## Section 5:

## Solve.

1. Sally and Joshua have the same amount of money.

Joshua pays $\$ 9.10$ for a bag and has $\$ 16.25$ left.
Sally buys a pen and has $\$ 19.60$ left.
How much does the pen cost?
2. Isaac buys a block of cheese for $\$ 5.70$, a bottle of olive oil for $\$ 11.25$, and a package of frozen chicken wings for $\$ 18.99$.
Isaac gives the cashier three $\$ 10$ bills, two $\$ 5$ bills, and four $\$ 1$ bills. How much change will Isaac get in return?
3. Mr. Lim buys a sweater, a handbag, and a watch.

The sweater costs \$108.90.
The handbag costs $\$ 60.30$ less than the sweater.
The watch costs $\$ 50.50$ more than the sweater.
Mr. Lim receives $\$ 33.10$ in change.
How much did Mr. Lim pay the cashier?

Add or subtract mentally. Use number bonds to help you.
4. Find $45+23$.

5. Find $87-34$.

6. Find $92+96$.


Solve. Use bar models to help you.
7. Helen puts 14 bread sticks in a basket. Her friend puts 17 breadsticks in the basket. How many breadsticks are in the basket?


There are breadsticks in the basket.
8. The third grade class has a new aquarium. There are 21 fish in it. 15 fish were given by families. The rest were bought by the school. How many were bought by the school.

9. There are 147 fish in a pond. 49 of them are black.

The rest are orange. How many are orange?

Solve:
10.
$4 \longdiv { 4 8 }$
$\qquad$
11.
$2 \longdiv { 6 4 }$
12.
$4 \longdiv { 5 6 }$

13. $86 \div 2=$
14. $38 \div 2=$
15. $75 \div 4=$

## Section 6:

Solve. Show your work.

1. Maria has 48 pencils. She gives the same number of pencils to each of her friends, and she has 3 pencils left. Each friend gets 9 pencils. How many friends are there?

Round each number to the nearest hundred.
2. 340
3. 882
$\qquad$
4. 550
$\qquad$
$\qquad$

Round each number to the nearest ten.
5. 22
6. 99
7. 150 $\qquad$

## Divide:

8. $72 \div 6=$ $\qquad$
9. $49 \div 7=$ $\qquad$
10. $64 \div 8=$ $\qquad$

## Add or subtract using mental math.

11. $99+42$
12. $198-97$
$\qquad$
13. $49+51$ $\qquad$

Divide to solve.
14. Three friends share 56 cards equally. How many cards does each child get? How many cards are left over?
15. Timothy packs 60 bottles of orange juice equally into four containers. How many bottles are in each container?

## Section 7:

## Subtract:

1. $\$ 37.65$

- \$16.03

2. $\quad \$ 85.00$

- $\$ 21.60$

3. $\quad \$ 36.78$

- \$14.95

4. $\quad \$ 70.00$

- \$28.20

Divide to solve.
5. Paul has 58 bicycles in his shop.

He arranges them in 5 equal rows.
a. How many are in each row?
b. How many are left over?

## Estimate first, then solve.

6. A tennis club orders 715 tennis balls. After some matches, 318 are worn out. The remaining matches will use 415 balls. Does the club have enough balls for the remaining matches?
7. The drama club has $\$ 416$ to spend on the next play.

Costumes cost $\$ 185.00$. Make up costs $\$ 176.00$.
What is the total cost of costumes and make up? How much money is left over after buying the two items?
8. Rick has $\$ 99.00$. He saves another $\$ 46.00$. How much money does he have now?

Use multiplication to solve.
9. Mr. Brown has 9 mirrors.

Each mirror has 9 sides.
How many sides do the mirrors have in all?
10. Pencils are given to 4 children.

Each child has 6 pencils.
How many pencils do the children have in all?
11. Andi has nine dolls.

Each doll costs \$6
How much do the nine dolls cost in all?
12. 4 X $\qquad$ $=$ $\qquad$ X $4=20$
13. 10 X $\qquad$ $=$ $\qquad$ X $10=90$
14. Look at each array model, then fill in the blanks.

a. 6 $\qquad$ 1824 $\qquad$ 36
b. 303642 $\qquad$

Solve:
15. $18=$ $\qquad$ $x 6$
16. $36=$ $\qquad$ x 6
17. $54=$ $\qquad$ $x 6$

## Section 8:

Divide mentally. Use related multiplication facts and patterns to help you.

1. Find $350 \div 5$

$$
\begin{aligned}
350 \div 5 & = \\
& =\square \text { tens } \div 5 \\
& =\square
\end{aligned}
$$

2. $700 \div 7=$ $\qquad$
3. $560 \div 8=$ $\qquad$
4. $6400 \div 8=$ $\qquad$
5. $7200 \div 9=$ $\qquad$

Solve. Draw bar models to help you.
6. A letter carrier delivers 999 letters in two days. The carrier delivers 306 letters on Monday and the rest of the letters on Tuesday. How many letters does the carrier deliver on Tuesday?

## Multiply.

7. $8 \times 2=$
8. $9 \times 6=$ $\qquad$
9. $6 \times 8=$
10. $7 \times 5=$ $\qquad$
11. $9 \times 4=$
12. $7 \times 3=$ $\qquad$

## Divide.

13. 108 divided by $12=$ $\qquad$
14. 121 divided by $11=$
15. 75 divided by $5=$
$\qquad$
$\qquad$

## Section 9:

## Fill in the blanks.

1. 5,600 is $\qquad$ more than 4,580 .
2. 7,203 is 100 more than $\qquad$ .
3. The difference between 654 and 1,000 is $\qquad$ .
4. $3,000+$ $\qquad$ $+25=3,425$.
5. The sum of 4,681 and 500 is $\qquad$ .
6. 5,642 in expanded form is:
7. In 1,863 , the digit $\qquad$ is in the tens place, and its value is $\qquad$ .
8. When 349 is divided by 5 , the quotient is $\qquad$ and the remainder is $\qquad$ .
9. Complete the number pattern. $5,576,5,676,5,776$, $\qquad$ , $\qquad$ .
10. Which of the following is the best estimate for the value of $386 \times 8$ ?

$$
\begin{aligned}
& 863 \quad 6,300 \quad 3,500 \quad 3,200 \\
& \text { 11. } \star+\star+\star=27 \\
& \mathbb{C}+\mathbb{C}+\mathbb{C}+\mathbb{C}=32 .
\end{aligned}
$$

Find the value of:
$\star \times \mathbb{C}=$ $\qquad$
12. Solve these problems.

| 149 |
| ---: |
| $\times 350$ |
| $\times \quad 402$ |

13. There are 48 cows on the farm. There are 4 times as many cows as pigs. How many more cows are there than pigs?

14. Mr. Ling earns $\$ 3,200$ a month. He spends $\$ 475$ on food, $\$ 1,500$ on other things, and saves the rest. How much does he save in a month?
15. The washer costs $\$ 1,367$. The dryer is $\$ 421$ less than the washer. Louise bought the washer and the dryer. How much did she pay?

16. 

Round 5,230 to the nearest 1,000 . $\qquad$

Round 7,986 to the nearest 100. $\qquad$

Round 6,675 to the nearest 10 . $\qquad$

Section 10:

Solve.

1. $\$ 3.20$
2. $\$ 4.65$
$+\$ 4.75$
$+\$ 5.33$
3. $\$ 8.65-\$ 4.00=$ $\qquad$
4. $\$ 9.70-\$ 0.60=$ $\qquad$
5. Place the following digits in the boxes so that the sum of the 3-digit numbers is 999. Use each digit only once.

6. What is the missing number?

$$
\longrightarrow \text { subtract } 18 \longrightarrow \text { multiply } 3=87
$$

7. Complete the following number pattern.

1,2,3,5,8,13,21, $\qquad$
8. Circle the number that has the digit 7 in the thousands place value.
a. 6,970
b. 7,906
c. 9,607
d. 9,760
9. Jane has $\$ 298$. Linda has $\$ 47$ more than Jane.

How much do they have in all?
a. \$251
b. $\$ 345$
c. $\$ 549$
d. $\$ 643$
10. 30 tens is $\qquad$ more than 49 fives.
a. 19
b. 55
c. 75
d. 251
11. Ian buys some magazines for $\$ 8$ each. He gives the cashier $\$ 100$ and receives $\$ 4$ change. How many magazines does lan buy?
a. 8
b. 9
C. 11
d. 12
12. I divide a number by 3 and subtract 85 from the quotient to make 190. What is the number?
a. 35
b. 92
c. 315
d. 825
13. Multiply 124 and 8 . answer: $\qquad$
14. The sum of two numbers is 300 . One number is 206 more than the other number. What is the value of the smaller number?
answer:

Section 1:
Express number in word form:

1. 6,257 six thousand, two hundred fifty-seven
2. 8,540
3. 7,601 eight thousand, five hundred forty seven thousand, six hundred one

Add. Use mental math.
4. $28+56=$ $\qquad$ 84 18
+56
+84
5. $34+49=$ $\qquad$ 83
6. $17+67=84+$
$\qquad$ $84-\frac{67}{84}$
7. $58-47=$ $\qquad$ 11 $\xrightarrow[\substack{155 \\-53}]{\frac{84}{102}} \begin{array}{r}58 \\ -47 \\ 11\end{array}$
8. $155-53=102-\begin{array}{r}155 \\ -\quad 53 \\ 102\end{array}$

Express number in expanded form:

$$
\begin{array}{ll}
9.9,304 & 9,000+300+4 \\
10.3,052 & 3,000+50+2 \\
11.1,643 & 1,000+600+40+3
\end{array}
$$

Order the numbers from least to greatest.
12. $9,143 \quad 9,034 \quad 9,134$

| 9,034 | 9,134 | 9,143 |
| :--- | :--- | :--- |

13. $3,256 \quad 3,279 \quad 3,238$

| 3,238 | 3,256 | 3,279 |
| :--- | :--- | :--- |

14. 

$$
\begin{array}{lll}
7,425 & 7,429 & 7,420 \\
7,420 & 7,425 & 7,429 \\
\hline
\end{array}
$$

Find each missing number.
15.10 more than 2,863 is $\qquad$ 2,873 Th, H TO 2,863
16.100 more than 829 is $\qquad$ 929 829
$17.1,000$ less than 4,059 is $\qquad$ 3,059 4,059

Complete each number pattern.

| 18. 8,625 | 8,725 | $\frac{8,825}{}$ |  | 8,925 | 9,025 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 19. 862 | 962 | 1,062 |  | 1,162 |  |
| 20. 6,215 | 6,115 | 6,015 |  | 5,915 |  |

Solve.
21. A grocer sells 548 apples and 470 oranges. Estimate the number of fruits he sells altogether.

$$
\begin{gathered}
54(8) \rightarrow 550 \\
\text { nearest }+\frac{170}{1,020} \\
10:
\end{gathered} \quad \begin{gathered}
\text { or } \begin{array}{c}
548 \rightarrow 500 \\
\text { nearest } \\
100: 1000
\end{array}
\end{gathered}
$$

The grocer sells about 1,020 or 1,000 fruits altogether
22. Circle the mystery number. Use the clues to help you.
(96) $61 \quad 47 \quad 54$

Clue 1: The digits in the number add up to a number greater than 10.
Clue 2: If I count in steps of 2 , I will get this number.

1. $9+6=15$, greater than 10 .
2. 96 is an even number.

## Section 2:

Subtract. Use mental math.

Express number in standard form:
6. eight thousand, six hundred twenty-nine

8,629
7. four thousand, seven hundred thirty

4,730
8. seven thousand, ten

7,010

Solve.
9 . ${ }^{3} 52 \times 6=312$
$\begin{array}{r}\times 6 \\ \hline 312\end{array}$
10. $113 \times 3=339$
$\begin{array}{r}\times \quad 3 \\ \hline 339\end{array}$
$\begin{array}{r}\times \quad 7 \\ \hline 147\end{array}$
$11.21 \times 7=147$

Complete by rounding each value to nearest ten and hundred.
value nearest ten nearest hundred
12. 139

$$
139-7140
$$

$$
1(3) \rightarrow 100
$$

13. 658
$65(8) \rightarrow 660$
(65) $\rightarrow 700$
14. 1,099

$$
1,09(9) \rightarrow 1,100
$$

$$
1,0,99 \rightarrow 1,100
$$

15. What number is 500 less than 6,125 ? $\qquad$

$$
\begin{array}{r}
56,1125 \\
-\quad 500 \\
\hline 5,625
\end{array}
$$

16. Jesse bought a toy for $\$ 28$.

She paid $\$ 19$ more for a model car than she paid for the toy. How much did Jesse pay in all?

$$
\begin{array}{r}
\$ 28 \\
+47 \\
\hline+19 \\
\hline \$ 47 \\
\hline \$ 75
\end{array}
$$

a. $\$ 47$
b. $\$ 57$
c. $\$ 65$
(d. $\$ 75$
17. What is the smallest four digit number that can be formed with the digits $3,8,0,7$ ? answer $\qquad$ 3,078

Solve. Draw a bar model to help.
18. Meena, Fiona and Jacob share a total of 320 seashells.

Fiona gets 140 seashells.
Meena gets 90 seashells.
How many seashells does Jacob get?


Jacobs gets 90 seashells.
19. Mrs. Johnson buys 68 posts and some wire to make a fence. Each post costs $\$ 7$. The wire costs $\$ 46$. How much does Mrs. Johnson pay for the posts and the wire?


$$
\begin{array}{r}
11 \\
\$ 476 \\
+\quad 46 \\
\hline \$ 522
\end{array}
$$

Mrs. Johnson paid $\$ 522$ for the wires and posts.

Section 3:

Solve.

1. $635+249=\frac{884}{779}+\frac{249}{884} \quad+271$
2. $508+271=779$

$$
\begin{array}{r}
13,684 \\
+2,700 \\
\hline 6,384
\end{array}
$$

Solve. Show your work and use bar models to help.
4. Mrs. Tan buys a duck and a chicken. The mass of the duck is 2,300 grams. The mass of the chicken is 1,675 grams. How much heavier is the duck than the chicken?


The duck is 625 grams heavier than the Chicken.
5. At Hillside Elementary School, there are 1,253 boys and 1,624 girls. How many students are there at the school?


$$
\begin{array}{r}
1,253 \\
+1,624 \\
\hline 2,877
\end{array}
$$

Boys


Girls


There are 2,877 students at Hillside Elementary school.
6. Complete the number pattern.

30
80
180
330 $\qquad$ Pattern rule: increase by 50 more each time.
7. I am a 3-digit number that is less than 500 .

My ones digit is twice the hundreds digit.
284 because... $4 \times 2=8$ and, $8+2=10+4=14$

The sum of the three digits is 14 .
or 356
or 428
Answer: 284; $356 ; 428$
8. $45+5=$ $\qquad$ -100 . The missing number is $\qquad$ 150 .
a. 30
b. 70
C. 130
(d. 150

$$
\begin{gathered}
45+5=150-100 \\
(50)=(50)
\end{gathered}
$$

9. In the number 8,296 what is the value of the digit 2 ?

$$
\frac{\text { Th H TO }}{8,296}
$$

Answer: 200
10. Subtract 989 from the sum of 1,857 and 2,465 .

$$
\begin{array}{r}
1,11 \\
1,857 \\
+2,465 \\
\hline 4,322
\end{array} \begin{array}{r}
121112 \\
-\quad 989 \\
\hline 3,333
\end{array}
$$

Answer: $\qquad$ 3,333

Solve. Show your work and use bar models to help.
11. Allison jogs 3,860 meters and Calvin jogs 5,470 meters.

How far do they jog altogether?


$$
\frac{+5,470}{9,330}
$$

Allison and Calvin joy 9,330 meters altogether.

Solve. Show your work.
12. Marbles per bag:

| Bag A: | Bag B: | Bag C: | Bag D: | Bag E: |
| :--- | :--- | :--- | :--- | :--- |
| 1,138 | 2,786 | 1,412 | 4,354 | 5,588 |

Jane takes Bag B and Bag D.
Karen takes Bag E.
a. Who has more marbles? 2,1786

Jane has more $\quad \frac{+4,354}{7,140}=$ Jane's marbles marbles.

$$
5,588=\text { Karen's marbles }
$$

b. How many more marbles does she have?

$$
67_{1}^{1013} \times 2^{\circ}
$$

$$
\begin{aligned}
& 65,488 \\
&-5,588
\end{aligned} \text { Jane has } 1,552 \text { more marbles. }
$$

Solve.

14. $\begin{aligned} & 1,51 \\ & 2,573\end{aligned}$
$\begin{array}{r}+1,989 \\ \hline 4,592\end{array}$
15. When you regroup 23 ones, you get 2 tens and 3 ones.

Section 4:

Multiply mentally.

1. $4 \times 30=$ $\qquad$ 120 $(4 \times 3=12)$
2. $9 \times 200=$ $\qquad$ 1,800 $(9 \times 2=18)$
3. $8 \times 8=$ $\qquad$ 64
4. $5 \times 8=$ $\qquad$ 40
5. $7 \times 70=$ $\qquad$ 490 $(7 \times 7=49)$
6. $9 \times 9=$ $\qquad$ 81

Solve. Show your work and use bar models to help.
7. A refrigerator costs 5 times as much as a television. The television costs $\$ 429$. What is the cost of the refrigerator?

8. The students in class 3 A buy 500 packets of seeds to start an eco-garden. On Monday, they use 27 packets of seeds. On Tuesday, they use twice as many packets as on Monday. How many packets of seeds do the students have left?

$\begin{array}{r}277 \\ \times \quad 3928 \\ \hline 81 \\ \hline 419\end{array}$
The students in $3 A$ have 419 packs of seeds left.
9. A store records the sales of its toys in the table below.

| MONTH | NUMBER OF TOYS SOLD |
| :--- | :--- |
| January | 180 |
| February | 90 more than in January |
| March | 3 times as many as in February |
| April | 320 fewer than in March |

a. How many toys are sold in February?

180
270

$$
\frac{90}{270}
$$

b. How many toys are sold in March?

$$
\begin{array}{r}
270 \\
\times \quad 3 \\
\hline 810 \\
\hline
\end{array}
$$

810
c. How many toys are sold in April? $7 \times 10$
$490 \quad-\frac{320}{490}$
d. How many toys are sold altogether during the four months? 1,750

10. $\quad 358$

2
$\times \quad 2$
716
11. $3_{1} 152$
$\times 6$
912
12. ${ }_{124}^{126}$
$\begin{array}{r}\times \quad 7 \\ \hline 882\end{array}$

Solve. Show your work and use bar models to help.
13. Sophia prepares 38 cheese sandwiches and 46 tuna sandwiches.

She puts the sandwiches equally onto 3 platters.
How many sandwiches are on each platter?

$\begin{array}{r}38 \\ +46 \\ \hline 84\end{array}$


Sophia puts 28 sandwiches on each platter.
14. Maria has $\$ 500$. She buys a pair of shoes for $\$ 108$. She gives the rest of the money to her 4 nieces. Her nieces share the money equally.
a. How much money does Maria give to her 4 nieces?

b. How much does each niece get?


Each niece gets $\$ 98$.
15. In 5,786 the digit 5 has the same value as $5 \times 1,000$ $\qquad$ $\begin{array}{r}98 \\ 4 \longdiv { 3 9 2 } \\ -360 \\ \hline 32\end{array}$ $\frac{-32}{0}$
a. $5 \times 1$
b. $5 \times 10$
C. $5 \times 100$
d. $5 \times 1,000$
$\begin{array}{r}1,000 \\ \times \quad 5 \\ \hline 5,000\end{array}$
16. What is the product of 346 and 9 ?
a. $300+14$
b. $3,000+14$
c. $300+100+4$

$$
\begin{array}{r}
\begin{array}{r}
345 \\
\begin{array}{r}
34 \\
x
\end{array} \\
3,114
\end{array} \rightarrow \text { in expanded form }= \\
3,000+100+14
\end{array}
$$

17. Divide 87 by 6 . The remainder is $\qquad$ $\cdot \frac{6 \sqrt{87}}{\frac{14 R 3}{-60}}$
a. 2
b. $3^{\text {a }}$
c. 4
d. 5

| -24 |
| :--- |
| $1{ }^{3}$ |

18. Find the greatest product of a 3 -digit number and a 1 -digit number using each digit below only once. (3 5
clue: order digits

multiply by greatest digit.


## Section 5:

Solve.

1. Sally and Joshua have the same amount of money. Joshua pays $\$ 9.10$ for a bag and has $\$ 16.25$ left.
Sally buys a pen and has $\$ 19.60$ left.
How much does the pen cost? ?
Joshua


| $\begin{array}{l}16.25 \\ \$ 16.25\end{array}$ | $\begin{array}{l}1 \$ .35 \\ +\quad 9.10\end{array}$ |
| :--- | :--- |
| $\$ 25.35$ | -19.60 |
| $\$ 5.75$ |  |

Sally


The Pen sally bought cost $\$ 5.75$.
2. Isaac buys a block of cheese for $\$ 5.70$, a bottle of olive oil for $\$ 11.25$, and a package of frozen chicken wings for $\$ 18.99$.
Isaac gives the cashier three $\$ 10$ bills, two $\$ 5$ bills, and four $\$ 1$ bills. How much change will Isaac get in return?


Isaac will get $\$ 8.06$
in change.
3. Mr. Lim buys a sweater, a handbag, and a watch.
$\$ 108.90$ (sweater) $\$ 108.90$ $-60.30$
The sweater costs $\$ 108.90$.
The handbag costs $\$ 60.30$ less than the sweater.
The watch costs $\$ 50.50$ more than the sweater.
Mr . Lim receives $\$ 33.10$ in change.
How much did Mr. Lit pay the cashier?

$$
\begin{aligned}
& \$ 316.90 \text { (total cost) } \\
+\quad & 33.10 \text { (change) } \\
& \$ 35000
\end{aligned}
$$

Add or subtract mentally. Use number bonds to help you.
4. Find $45+23$.

5. Find 87-34.

6. Find $92+96$.


Solve. Use bar models to help you.
7. Helen puts 14 bread sticks in a basket. Her friend puts 17 breadsticks in the basket. How many breadsticks are in the basket?

8. The third grade class has a new aquarium. There are 21 fish in it. 15 fish were given by families. The rest were bought by the school. How many were bought by the school.


1211
$-\frac{15}{6}$
The school bought 6 fish.
9. There are 147 fish in a pond. 49 of them are black.

The rest are orange. How many are orange?

Fish
Solve:
10.
 There are 98 orange fish.

12
$4 \begin{array}{r}48 \\ 4 \quad 0 \\ \hline 8 \\ 8 \\ \hline 0\end{array}$
11.

| 1 |
| ---: |
| 1 |
| 5 <br> 4 |
| 10 |
| 1 |
| 1 | 6

13. $86 \div 2=43$
14. $38 \div 2=19$
15. $75 \div 4=18 \mathrm{r} 3$

Section 6:

15.


Solve. Show your work.

1. Maria has 48 pencils. She gives the same number of pencils to each of her friends, and she has 3 pencils left. Each friend gets 9 pencils. How many friends are there?

## There are 5 friends.



Round each number to the nearest hundred.
2. ${ }_{3}^{3} 40$

4. 55


Round each number to the nearest ten.
5. 22
6. 99
7.
150 $\frac{20}{100}$
7. $150-160$

Divide:
8. $72 \div 6=$ $\qquad$ 12
9. $49 \div 7=7$
10. $64 \div 8=$ $\qquad$

$$
\begin{array}{ll}
\text { 8. } \begin{array}{ll}
\frac{12}{72} & 9 . \\
& \frac{-60}{12}
\end{array} & 49 \div 7=49 \\
& 49 \div 7
\end{array}
$$

$$
\text { 10. } \begin{aligned}
8 \times 8 & =64 \\
64 \div 8 & =8
\end{aligned}
$$

Add or subtract using mental math.
11. $99+42 \frac{|4|}{10 \mid}$
12. 198-97 101
13. $4 9 + 5 1 \longdiv { 1 0 0 }$

$$
\text { 11. } 100+42=142
$$

$$
142-1=141
$$

12. 

$$
\begin{aligned}
& 198-98=100 \\
& 100+1=101
\end{aligned}
$$

13. 

$$
\begin{aligned}
& 50+51=101 \\
& 101-1=100
\end{aligned}
$$

Divide to solve.
14. Three friends share 56 cards equally. How many cards does each child get? How many cards are left over?


$$
\begin{aligned}
& 18 R 2 \\
& 3 \sqrt{56} \\
&-\frac{30}{26} \\
&-\frac{24}{2}
\end{aligned}
$$

Each friend gets 18 cards. 2 cards are leftover.
15. Timothy packs 60 bottles of orange juice equally into four containers. How many bottles are in each container?


There are 15 bottles of

$$
\begin{array}{r}
15 \\
4 \longdiv { 6 0 } \\
-40 \\
\hline 20 \\
-20 \\
\hline 0
\end{array}
$$ orange juice in each container.

## Section 7:

Subtract:

1. $\$ 37.65$

- \$16.03
\% 21.62

2. 

$$
\begin{array}{r}
4 \\
\$ 85.00 \\
-\$ 21.60 \\
\hline \$ 63.40
\end{array}
$$

3. 

5
$\$ 36.178$

- \$14.95
- 29.83

4. $\begin{array}{r}69 \\ \$ 7 \pi!00 \\ -\$ 28.20 \\ \hline 41.80\end{array}$

Divide to solve.
58
5. Paul has 58 bicycles in his shop. He arranges them in 5 equal rows.
a. How many are in each row?
b. How many are left over?


There are 11 bicycles in each row. $\frac{-50}{8}$
There are 3 bicycles left over.

$$
\begin{array}{r}
8 \\
-5 \\
\hline 3
\end{array}
$$

Estimate first, then solve.
6. A tennis club orders 715 tennis balls. After some matches, $715 \rightarrow 700 \quad 415$ 318 are worn out. The remaining matches will use 415 balls. Does the club have enough balls for the remaining matches?

$$
318 \rightarrow \frac{-300}{400} \quad-\frac{400}{15}
$$

$$
410
$$

$$
-\frac{318}{397}-\frac{-397}{18}
$$

The club does not have enough balls for the remaining matches. They need 18 more.
7. The drama club has $\$ 416$ to spend on the next play. Costumes cost $\$ 185.00$. Make up costs $\$ 176.00$. What is the total cost of costumes and make up? How much money is left over after buying the two items?

$$
\begin{array}{ll}
\$ 185 \rightarrow \$ 200 & \$ 416 \\
\$ 176 \rightarrow+\frac{\$ 200}{\$ 400} & \frac{-\$ 400}{\$ 16}
\end{array}
$$

| $\$ 185$ |
| ---: |
| $+\$ 176$ |
| $\$ 361$ |

$\begin{array}{r}3116 \\ -361 \\ \hline \quad 55\end{array}$
The total cost of costumes and makeup is 361 .
\$55 is left over after buying the two items.
8. Rick has $\$ 99.00$. He saves another $\$ 46.00$. How much money does he have now?

$\$ 99 \rightarrow \$ 100$
$\$ 46 \rightarrow+50$

$\$ 150$

Use multiplication to solve.
9. Mr. Brown has 9 mirrors.

Each mirror has 9 sides.
How many sides do the mirrors have in all?

$$
9 \times 9=81
$$

The nine mirrors have 81 sides in all.
10. Pencils are given to 4 children.

Each child has 6 pencils.
How many pencils do the children have in all?

$$
4 \times 6=24
$$

The children have 24 pencils in all.
11. Andi has nine dolls.

Each doll costs \$6


Andi's nine dolls cost $\$ 54$ in all.
12. $4 \times 5=5 \times 4=20$
13. $10 \times 9=9 \times 10=90$
14. Look at each array model, then fill in the blanks.


Solve:
15. $18=3 \times 6$
16. $36=6 \times 6$
17. $54=9 \times 6$

Section 8:
Divide mentally. Use related multiplication facts and patterns to help you.

1. Find $350 \div 5$

$$
\begin{aligned}
350 \div 5 & =35 \text { tens } \div 5 \\
& =7 \text { tens } \\
& =70
\end{aligned}
$$

2. $700 \div 7=\underline{100}$

$$
70 \div 7=10
$$

3. $560 \div 8=70$

$$
56 \div 8 \div 7
$$

4. $6400 \div 8=800$

$$
64 \div 8=8
$$

$$
640 \div 8=80
$$

5. $7200 \div 9=800 \quad 72 \div 9=8 \quad 720 \div 9=80$

Solve. Draw bar models to help you.
6. A letter carrier delivers 999 letters in two days.

The carrier delivers 306 letters on Monday and the rest of the letters on Tuesday. How many letters does the carrier deliver on Tuesday?
letters


$$
\begin{array}{r}
999 \\
-306 \\
\hline 693
\end{array}
$$

The carrier delivers 693 letters on Tues day.

Multiply.
7. $8 \times 2=$ $\qquad$ 16
8. $9 \times 6=54$
9. $6 \times 8=\frac{48}{35}$
10. $7 \times 5=35$
11. $9 \times 4=36$
12. $7 \times 3=21$
$\qquad$

Divide.
13. 108 divided by $12=$ $\qquad$
14. 121 divided by $11=$ $\qquad$ 15
15. 75 divided by $5=$ $\qquad$
$\qquad$
$\qquad$
13)

$$
\begin{gathered}
108-\frac{12-12-12-12-12-12-12-12-12}{9 \times 12=108} \\
108 \div 12=9
\end{gathered}
$$

14) 

$$
\begin{array}{r}
11 \\
11 \begin{array}{r}
121 \\
-\frac{110}{11} \\
-11 \\
\hline 0
\end{array}
\end{array}
$$

15) 

$$
\begin{array}{r}
15 \\
-\frac{50}{75} \\
-\frac{50}{25} \\
-\frac{25}{0}
\end{array}
$$

Section 9:
Fill in the blanks.

1. 5,600 is 1,020 more than 4,580 .
2. 7,203 is 100 more than 7,103 .
3. The difference between 654 and 1,000 is 346
4. $3,000+400+25=3,425$.
5. The sum of 4,681 and 500 is 5,181
6. 5,642 in expanded form is:
1) $\begin{array}{r}5,600 \\ -4580 \\ \hline 1,020\end{array}$
2) 7,203

$$
\frac{-\quad 100}{7,103}
$$

3) $\begin{array}{r}1,980 \\ -\quad 654 \\ \hline 346\end{array}$

$$
5,000+600+40+2
$$

7. In 1,863 , the digit $\qquad$ 60 is in the tens place, and its value is $\qquad$

$$
4 \quad \begin{array}{r}
69 \\
\frac{5349}{-300} \\
49
\end{array}
$$

9. Complete the number pattern. $\begin{gathered}5,576,5,676,5,776 \\ +100 \\ +100\end{gathered}$

$$
\frac{-45}{4}
$$

10. Which of the following is the best estimate for the value of $386 \times 8$ ?

$$
\begin{aligned}
& 386 \rightarrow 400 \\
& \times \quad 8 \\
& \hline 3,200
\end{aligned}
$$

863 6,300 3,500
(3,200
11. $\star+\star+\star=27$

$$
9+9+9=27 \quad *=9
$$

$$
\mathbb{C}+\mathbb{C}+\mathbb{C}+\mathbb{C}=32 \quad \quad 8+8+8+8=32 \quad \mathbb{C}=8
$$

$$
9 \times 8=72
$$

Find the value of:
$\star x \mathbb{C}=72$
12. Solve these problems.

| 2 | 2 | 1 |
| :---: | :---: | ---: |
| 149 | 450 | 402 |
| $\times 3$ | $\times 5$ | $\times 8$ |
| 447 | 2,250 | 3,216 |

13. There are 48 cows on the farm. There are 4 times as many cows as pigs. How many more cows are there than pigs?


48
-12
$-\frac{36}{36}$
cows
pigs


4 units $=48$
1 unit $=12$


There are 36 more cows than pigs.
14. Mr. Ling earns $\$ 3,200$ a month. He spends $\$ 475$ on food, $\$ 1,500$ on other things, and saves the 3 , rest. How much does he save in a month? 1,500

15. The washer costs $\$ 1,367$. The dryer is $\$ 421$ less than the washer. Louise bought the washer and the dryer. How much did she pay?


Louise paid $\$ 2,313$.
16.


Round 5,230 to the nearest 1,000 . 5,000
Round $7, \underline{9} 86$ to the nearest 100. $\underline{8}, 000$
Round 6,675 to the nearest $10.6,680$

Section 10:

Solve.

1. $\$ 3.20$
$+\$ 4.75$
$\$ 7.95$
2. $\$ 4.65$
$+\$ 5.33$
$\$ 9.98$
3. $\$ 8.65$
$\frac{-\$ 4.00}{\$ 4.65}$
4. $\$ 8.65-\$ 4.00=\frac{\$ .65}{\$ 9.10}$
5. $\$ 9.70-\$ 0.60=\$ 9.10$
6. $\begin{array}{r}\$ .70 \\ -\$ .60 \\ \hline \$ 9.10\end{array}$
7. Place the following digits in the boxes so that the sum of the 3-digit numbers is 999. Use each digit only once.
$\begin{array}{lllllllll}1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9\end{array}$

8. What is the missing number?

$$
47 \longrightarrow \text { subtract } 18 \longrightarrow \text { multiply } 3=87
$$

$$
\begin{array}{r}
3 \\
47 \\
-18 \\
\hline 29 \\
\hline 83 \\
\hline 87
\end{array}
$$

7. Complete the following number pattern. $1+2=3 \quad 3+5=8 \quad 8+13=21 \quad 21+34=55$ 1,2,3,5,8,13,21, 34,55
8. Circle the number that has the digit 7 in the thousands place value.
a. 6,970
b. 7,906
c. 9,607
ones
d. 9,760
tens hundreds
9. Jane has $\$ 298$. Linda has $\$ 47$ more than Jane. How much do they have in all?
a. $\$ 251$
b. $\$ 345$
c. $\$ 549$

$\begin{array}{rr}11 & \$ 1 \\ \$ 298 & \$ 345 \\ +\quad 47 & +298 \\ \$ 345 & \sqrt{643}\end{array}$
10. 30 tens is $\qquad$ more than 49 fives.
a. 19
b. 55
c. 75
d. 251
$30 \operatorname{ten} s=300$

11. Ian buys some magazines for $\$ 8$ each. He gives the cashier $\$ 100$ and receives $\$ 4$ change. How many magazines does lan buy?
a. 8
b. 9
c. 11

$8 \longdiv { 1 2 }$
$\begin{array}{r}-80 \\ \hline 16\end{array}$
12. I divide a number by 3 and subtract 85 from the quotient to make 190. What is the number?
a. 35
b. 92
c. 315

$\begin{array}{r}275 \\ 3 \longdiv { 8 2 5 } \\ -600 \\ \hline 225\end{array}$
13. Multiply 124 and 8.
answer: 992

14. The sum of two numbers is 300 . One number is 206 more than the other number. What is the value of the smaller number? answer: 47

