

CHAPTER
2**Estimation and Number Theory****Lesson 2.1 Estimation**

Find each sum or difference. Then use rounding or front-end estimation to check that your answers are reasonable.

1. $649 + 385 =$ _____

Estimated sum: _____

2. $2,264 + 8,721 =$ _____

Estimated sum: _____

3. $538 - 269 =$ _____

Estimated difference: _____

4. $18,460 - 485 =$ _____

Estimated difference: _____

Find each product. Then use rounding or front-end estimation to check that your answers are reasonable.

5. $282 \times 3 =$ _____

Estimated product: _____

6. $119 \times 5 =$ _____

Estimated product: _____

7. $188 \times 4 =$ _____

Estimated product: _____

Name: _____

Date: _____

Find each quotient. Then use related multiplication facts to check that your answers are reasonable.

8. $76 \div 4 =$ _____ Estimated quotient: _____

9. $98 \div 2 =$ _____ Estimated quotient: _____

10. $87 \div 3 =$ _____ Estimated quotient: _____

Solve. Decide whether to find an estimate or an exact answer.

11. Mr. Jackson has \$8,000. He wants to buy the following items.



microwave



toaster



oven



coffee machine

Complete the table.

Item	Actual Cost	Rounded to the Nearest Hundred
microwave	\$ _____	\$ _____
toaster	\$ _____	\$ _____
oven	\$ _____	\$ _____
coffee machine	\$ _____	\$ _____

Does Mr. Jackson have enough money to pay for all the items? _____

Name: _____

Date: _____

Lesson 2.2 Factors

Answer each question. Write *Yes* or *No*.

1. Is 6 a factor of 72? _____ 2. Is 8 a factor of 84? _____
3. Is 7 a factor of 98? _____ 4. Is 4 a factor of 98? _____
5. Is 9 a factor of 108? _____ 6. Is 5 a factor of 125? _____
7. Is 7 a factor of 86? _____ 8. Is 6 a factor of 96? _____

Find the common factors of each number pair.
Then find the greatest factor.

36

60

9. The factors of 36:

$$36 = 1 \times \underline{\hspace{2cm}}$$

$$36 = 2 \times \underline{\hspace{2cm}}$$

$$36 = 3 \times \underline{\hspace{2cm}}$$

$$36 = 4 \times \underline{\hspace{2cm}}$$

$$36 = 6 \times \underline{\hspace{2cm}}$$

The factors of 36 are _____.

10. The factors of 60:

$$60 = 1 \times \underline{\hspace{2cm}}$$

$$60 = 2 \times \underline{\hspace{2cm}}$$

$$60 = 3 \times \underline{\hspace{2cm}}$$

$$60 = 4 \times \underline{\hspace{2cm}}$$

$$60 = 5 \times \underline{\hspace{2cm}}$$

$$60 = 6 \times \underline{\hspace{2cm}}$$

The factors of 60 are _____.

Name: _____

Date: _____

11. The common factors of 36 and 60 are _____.

12. The greatest common factor of 36 and 60 is _____.

84

72

13. Factors of 84:

$$84 = 1 \times \underline{\hspace{2cm}}$$

$$84 = 2 \times \underline{\hspace{2cm}}$$

$$84 = 3 \times \underline{\hspace{2cm}}$$

$$84 = 4 \times \underline{\hspace{2cm}}$$

$$84 = 6 \times \underline{\hspace{2cm}}$$

$$84 = 7 \times \underline{\hspace{2cm}}$$

The factors of 84 are _____.

14. Factors of 72:

$$72 = 1 \times \underline{\hspace{2cm}}$$

$$72 = 2 \times \underline{\hspace{2cm}}$$

$$72 = 3 \times \underline{\hspace{2cm}}$$

$$72 = 4 \times \underline{\hspace{2cm}}$$

$$72 = 6 \times \underline{\hspace{2cm}}$$

$$72 = 8 \times \underline{\hspace{2cm}}$$

The factors of 72 are _____.

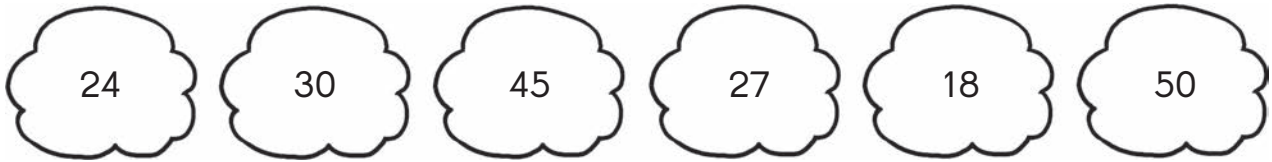
15. The common factors of 84 and 72 are _____.

16. The greatest common factor of 84 and 72 is _____.

Name: _____

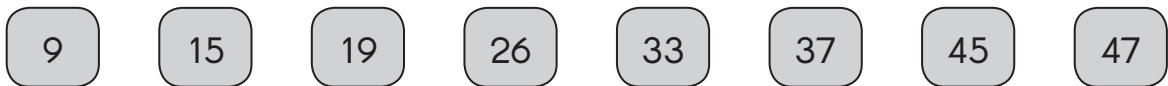
Date: _____

Look at the numbers. Fill in the blanks.



17. Write all the numbers that have 3 as a factor. _____
18. Write all the numbers that have 6 as a factor. _____
19. Write all the numbers that have 3 and 6 as factors. _____

Complete. Find the prime and composite numbers.



20. The prime numbers are _____.
21. The composite numbers are _____.

Find the prime and composite numbers in each set.

22. Write the next six prime numbers after 10.

23. Write all the composite numbers between 20 and 30.

Name: _____

Date: _____

Lesson 2.3 Multiples

Fill in the blanks.

1. The fifth multiple of 8 is _____.
2. The eighth multiple of 9 is _____.
3. The twelfth multiple of 6 is _____.
4. The eleventh multiple of 7 is _____.
5. The seventh multiple of 10 is _____.

Find the common multiples of each pair of numbers.
Then find the least common multiple.

4

9

6. The first 18 multiples of 4 are _____

7. The first 8 multiples of 9 are _____
8. The first two common multiples of 4 and 9 are _____
9. The least common multiple of 4 and 9 is _____

6

8

10. The first 8 multiples of 6 are _____
11. The first 8 multiples of 8 are _____
12. The first two common multiples of 6 and 8 are _____
13. The least common multiple of 6 and 8 is _____

Name: _____

Date: _____

Find the least common multiple of each pair of numbers.

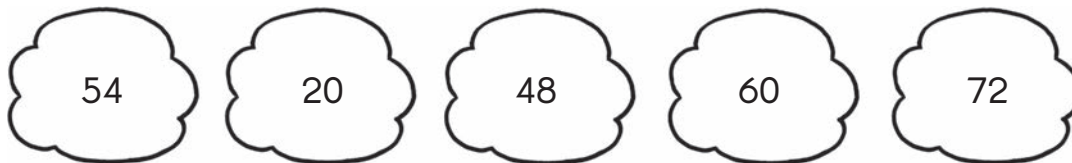
14. 7 and 8

15. 9 and 12

16. 10 and 12

17. 15 and 20

Use these numbers to fill in the blanks.



18. Write all the numbers that are multiples of 4.

19. Write all the numbers that are multiples of 8.

20. Write all the numbers that are multiples of 9.

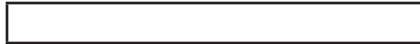
21. Find the number that is the least common multiple of 4, 8, and 9.

Lesson 2.4 Multiplying Using Models

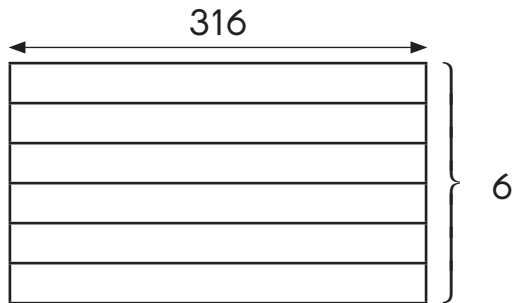
Solve.

1. A rectangular block represents 316.

316



What do 6 rectangular blocks represent?



$$316 \times 6 =$$

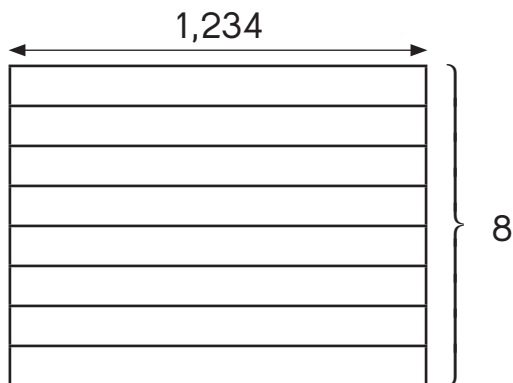
$$\begin{array}{r} 316 \\ \times \quad 6 \\ \hline \end{array}$$

2. A rectangular block represents 1,234.

1,234



What do 8 rectangular blocks represent?



$$1,234 \times 8 =$$

$$\begin{array}{r} 1234 \\ \times \quad 8 \\ \hline \end{array}$$

Name: _____

Date: _____

3. $8 \times 7 =$ _____

4. $50 \times 7 =$ _____

5. $600 \times 7 =$ _____

6. $2,000 \times 7 =$ _____

Using the results from Exercises 3 to 6, find the product of 2,658 and 7.

7.

		2,	6	5	8	
×					7	
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Name: _____

Date: _____

Find each product.

8.

$$\begin{array}{r} 495 \\ \times \quad 8 \\ \hline \square\square\square\square \end{array}$$

9.

$$\begin{array}{r} 898 \\ \times \quad 4 \\ \hline \square\square\square\square \end{array}$$

10.

$$\begin{array}{r} 927 \\ \times \quad 9 \\ \hline \square\square\square\square \end{array}$$

11.

$$\begin{array}{r} 993 \\ \times \quad 5 \\ \hline \square\square\square\square \end{array}$$

12.

$$\begin{array}{r} 3589 \\ \times \quad 3 \\ \hline \square\square\square\square\square \end{array}$$

13.

$$\begin{array}{r} 2678 \\ \times \quad 6 \\ \hline \square\square\square\square\square \end{array}$$

14.

$$\begin{array}{r} 7231 \\ \times \quad 3 \\ \hline \square\square\square\square\square \end{array}$$

15.

$$\begin{array}{r} 4963 \\ \times \quad 7 \\ \hline \square\square\square\square\square \end{array}$$

16.

$$\begin{array}{r} 5497 \\ \times \quad 8 \\ \hline \square\square\square\square\square \end{array}$$

17.

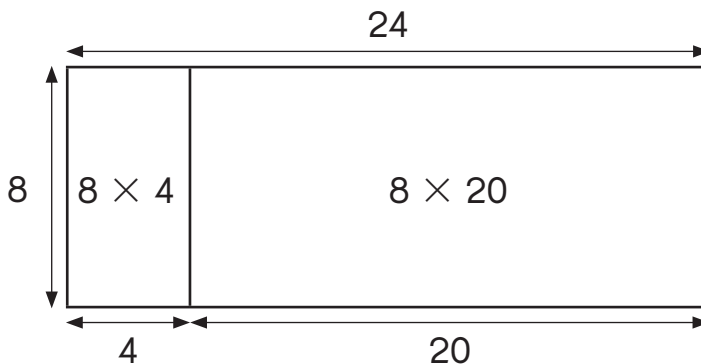
$$\begin{array}{r} 4836 \\ \times \quad 7 \\ \hline \square\square\square\square\square \end{array}$$

Name: _____

Date: _____

Use the area models to find the product.

18. 24×8



Step 1

$$4 \times 8 =$$

Step 2

$$20 \times 8 =$$

$$\begin{array}{r} 20 \\ \times 8 \\ \hline \end{array}$$

Step 3

Add the two parts of the product.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

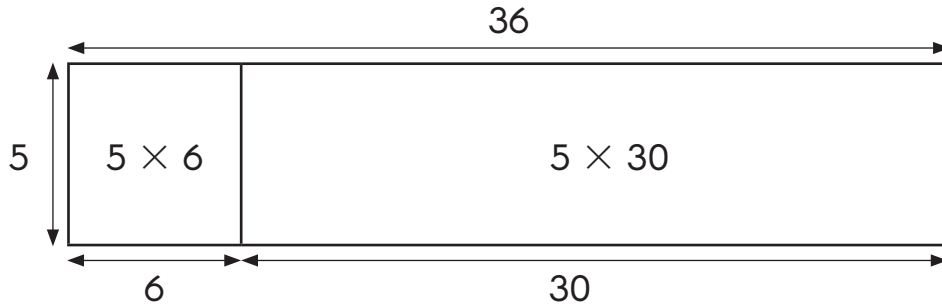
Hence,

$$24 \times 8 = \underline{\hspace{2cm}}$$

Name: _____

Date: _____

19. 36×5



Step 1

$$6 \times 5 =$$

Step 2

$$30 \times 5 =$$

$$\begin{array}{r} 30 \\ \times 5 \\ \hline \end{array}$$

Step 3

Add the two parts of the product.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

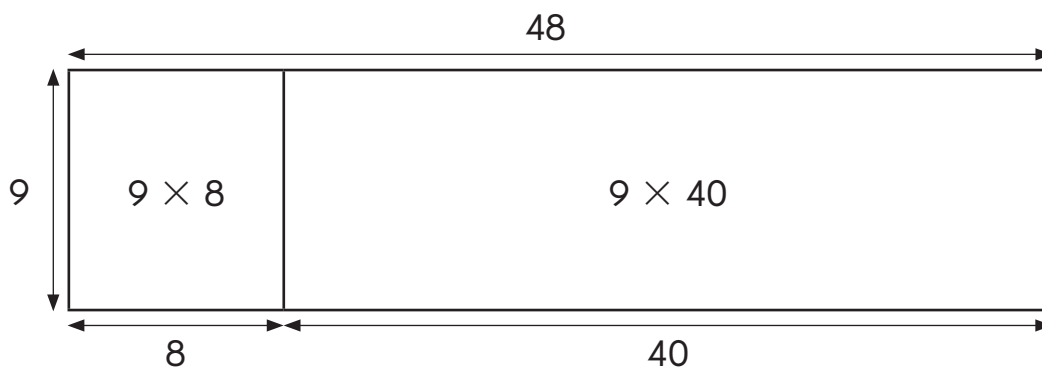
Hence,

$$36 \times 5 = \underline{\hspace{2cm}}$$

Name: _____

Date: _____

20. 48×9



Step 1

$$8 \times 9 =$$

Step 2

$$40 \times 9 =$$

$$\begin{array}{r} 40 \\ \times 9 \\ \hline \end{array}$$

Step 3

Add the two parts of the product.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

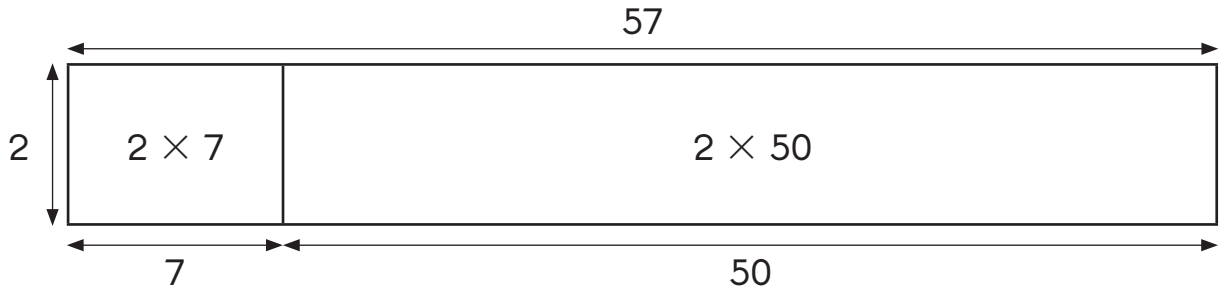
Hence,

$$48 \times 9 = \underline{\hspace{2cm}}$$

Name: _____

Date: _____

21. 57×2



Step 1

$$7 \times 2 =$$

Step 2

$$50 \times 2 =$$

$$\begin{array}{r} 50 \\ \times 2 \\ \hline \end{array}$$

Step 3

Add the two parts of the product.

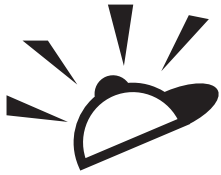
$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Hence,

$$57 \times 2 = \underline{\hspace{2cm}}$$

Name: _____

Date: _____



Put On Your Thinking Cap!

Solve.

1. A number is between 10 and 20. It is also a factor of 24.

What is the number? _____

2. It is a 3-digit number. All the digits are different. The first and second digits are multiples of 3. The first digit is greater than the second digit. The sum of the first two digits is 7 more than the third digit. The number is not a multiple of 5. The third digit is greater than 3.

What is the number? _____

3. Jane's age is a two-digit multiple of 4. Next year, her age will be a multiple of 5. How old is Jane now?

Name: _____

Date: _____

Solve.

4. Mrs. Garcia watches 16 students cycle home after school. She counts 38 wheels. Some of the students are on bicycles, and the rest are on tricycles. How many students are on bicycles?

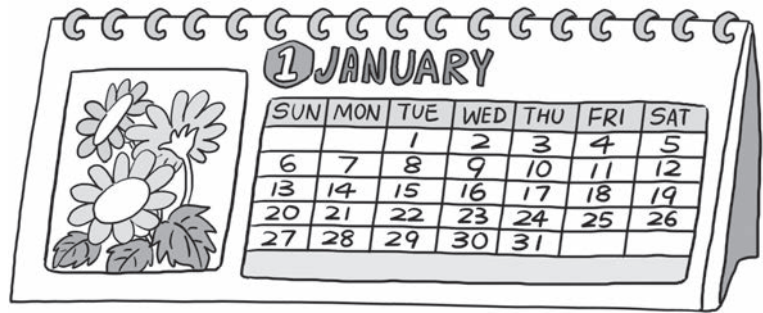


5. Michelle has less than 50 baseball cards. If she puts them in packs of 7, she has 5 baseball cards left. If she puts them in packs of 9, she has 6 baseball cards left. How many baseball cards does Michelle have?

Name: _____

Date: _____

6. Susan's birthday is in January.
- The date has two digits.
 - You say the date when you count by fours.
 - The date is divisible by 6.
 - The sum of the digits is 3.



When is Susan's birthday? _____

7. Nathan's birthday is also in January.
- The date has two digits.
 - The date can only be divided by 1 and by itself.
 - The sum of the digits is 8.

When is Nathan's birthday? _____

Name: _____

Date: _____

8. Daniel has won \$20 worth of prizes. He can choose from these prizes.



Show the ways in which he can select \$20 worth of prizes. Use ✓ to show the number of each prize he can choose.

Adventure Books (\$4)	Soft Toys (\$6)	Games (\$8)