

Vocabulary

remainder The amount left over when a number cannot be divided equally

Dear Family,

During the next few weeks, our math class will be learning how to model division with 1-digit and 2-digit divisors. The class will learn hands on activities to model division by sharing, using base-ten blocks, by subtracting equal groups, and by using the inverse operation of multiplication. We will also learn about remainders in division.

You can expect to see homework that provides practice modeling division.

Here is a sample of how your child will be taught to model division using the Distributive Property.

MODEL Model Division by Using Inverse Operations

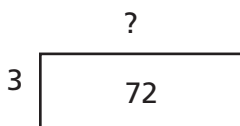
This is how we will divide using the Distributive Property and multiplication.

Find $72 \div 3$.

STEP 1

Draw a rectangle.

Think: $3 \times \square = 72$

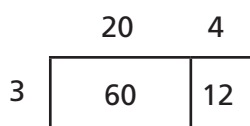


STEP 2

Break apart the rectangle into smaller rectangles for partial products you know.

$$60 + 12 = 72$$

$$(3 \times 20) + (3 \times 4) = 72$$



STEP 3

Find the sum of the missing factors of the smaller arrays.

$$3 \times 20 = 60, \text{ so } 60 \div 3 = 20.$$

$$3 \times 4 = 12, \text{ so } 12 \div 3 = 4.$$

$$20 + 4 = 24$$

$$\text{So, } 72 \div 3 = 24.$$

Tips

Whenever possible, try to use multiplication facts and multiples of ten when breaking your rectangle into smaller rectangles. In the problem at the left, 3×20 is easy to find mentally.

residuo La cantidad sobrante cuando un número no se puede dividir entre partes iguales

Querida familia,

Durante las próximas semanas, en la clase de matemáticas estudiaremos cómo representar la división con divisores de 1 y 2 dígitos. Para ello, desarrollaremos actividades prácticas como compartir, usar bloques de base diez, restar grupos iguales y resolver operaciones inversas de multiplicación. También aprenderemos sobre el residuo en la división.

Llevaré a la casa tareas con actividades para representar la división.

Este es un ejemplo de la manera como aprenderemos a representar la división usando la propiedad distributiva.

MODELO Representar la división usando operaciones inversas

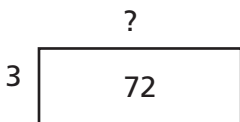
Así es como dividiremos usando la propiedad distributiva y la multiplicación.

Halla $72 \div 3$.

PASO 1

Dibuja un rectángulo.

Piensa: $3 \times \square = 72$

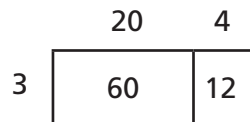


PASO 2

Divide el rectángulo en rectángulos más pequeños con productos parciales que conozcas.

$$60 + 12 = 72$$

$$(3 \times 20) + (3 \times 4) = 72$$



PASO 3

Halla la suma de los factores que faltan en las matrices más pequeñas.

$$3 \times 20 = 60, \text{ por lo tanto } 60 \div 3 = 20.$$

$$3 \times 4 = 12, \text{ por lo tanto } 12 \div 3 = 4.$$

$$20 + 4 = 24$$

$$\text{Por lo tanto, } 72 \div 3 = 24.$$

Pistas

En la medida de lo posible, trata de usar operaciones de multiplicación y múltiplos de diez cuando dividas el rectángulo en rectángulos más pequeños. En el problema anterior, 3×20 es más fácil de hallar mentalmente.

Name _____

Types of Division Problems

MA.4.A.6.2 Use models to represent division as: • the inverse of multiplication • as partitioning • as successive subtraction.

Do you need to find the *number of equal groups* or the *number in each group*? Model the problem. Record the answer.

- Brooklynn has 42 pages left to read in her book. If she wants to read the same number of pages on each of 7 days, how many pages will she read each day?
- Colin wants to buy some yo-yos as party favors. Each yo-yo costs \$3. How many yo-yos can Colin buy with \$24?

number in each group; 6 pages

- If Nevaeh has 32 pretzels and wants to put 8 pretzels in each snack bag, how many snack bags will she fill?
- If Garrett has 40 spoons and he places them equally into 8 silverware trays, how many spoons will go in each tray?

Underline the sentence that answers the problem.

- Catherine has 28 stamps. She places them equally on 4 pages. How many stamps will be on each page?
 - There are 7 pages of stamps.
 - There are 7 stamps on each page.
- Aaron spent \$24 to buy 4 new guitar strings. If each string costs the same amount, what is the cost of each string?
 - Each string costs \$6.
 - Aaron buys 6 strings.

Problem Solving REAL WORLD

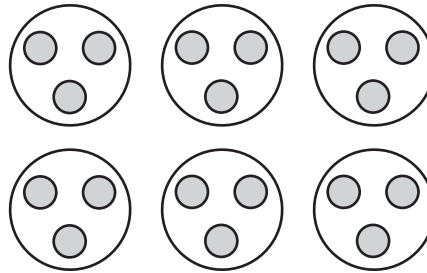
- Riley plants 18 wildflower seeds. He places 3 seeds in each hole he makes in the ground. How many holes does Riley make?
- Katie spends \$30 on new pairs of earrings. If each pair costs \$6, how many pairs of earrings does Katie buy?

Lesson Check (MA.4.A.6.2)

1. Amelia won a total of 36 tickets playing games at the fair. At the prize booth, each prize costs 3 tickets. Amelia wants to know how many prizes she can get. Which of the following does Amelia need to find to solve the problem?

- (A) the number left over
- (B) the number of equal groups
- (C) the number in each group
- (D) the total number

2. How many equal groups does the model show?



- (F) 3
- (G) 6
- (H) 9
- (I) 18

Review Grade 4 (MA.4.A.1.2)

3. How many zeros are in the product $40 \times 5,000$?

- (A) 3
- (B) 4
- (C) 5
- (D) 6





4. Vincent saves \$20 a day for a trip to space camp. How much will Vincent have saved in 60 days?

- (F) \$12
- (G) \$120
- (H) \$1,200
- (I) \$12,000



Look Back (MA.3.A.1.1, MA.4.A.6.2)

5. Which model shows $6 \div 2$?

- (A) 
- (B) 
- (C) 
- (D) 

6. Christiana puts 12 balls into 3 equal groups. How many balls does she put in each group?

- (F) 2
- (G) 3
- (H) 4
- (I) 6



Name _____

Divide with Remainders



MA.4.A.6.2 Use models to represent division as: • the inverse of multiplication • as partitioning • as successive subtraction.

Use counters to find the quotient and remainder.

1. $13 \div 4$
3 r1

2. $24 \div 7$

3. $39 \div 5$

4. $36 \div 8$

5. $6 \overline{)27}$

6. $25 \div 9$

7. $3 \overline{)17}$

8. $26 \div 4$

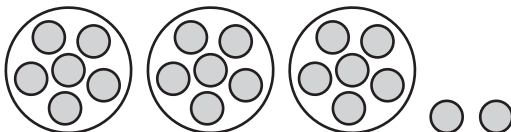
Divide. Draw a quick picture to help.

9. $14 \div 3$

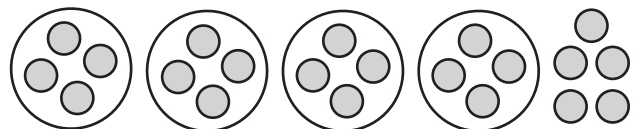
10. $5 \overline{)29}$

Problem Solving REAL WORLD

11. What is the quotient and remainder in the division problem modeled below?



12. Mark drew the following model and said it represented the problem $21 \div 4$. Is Mark's model correct? If so, what is the quotient and remainder? If not, what is the correct quotient and remainder?

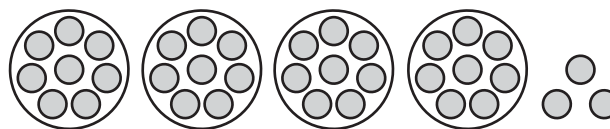


Lesson Check (MA.4.A.6.2)

1. What is the quotient and remainder for $32 \div 6$?

- (A) 4 r3
- (B) 5 r1
- (C) 5 r2
- (D) 6 r1

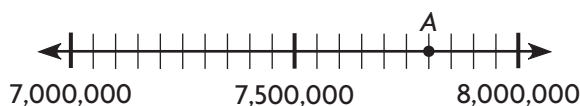
2. What is the remainder in the division problem modeled below?



- (F) 8
- (G) 4
- (H) 3
- (I) 1

Review Grade 4 (MA.4.A.6.1)

3. Which number does point A represent in the number line below?



- (A) 7,850,000
- (B) 7,800,000
- (C) 7,750,000
- (D) 7,600,000

4. Orlando, Florida has about 52,000,000 visitors each year. What is this number written in word form?

- (F) fifty-two thousand
- (G) five million two
- (H) five million
- (I) fifty-two million



Look Back (MA.3.A.1.1, MA.4.A.6.2)

5. How many groups of 5 divide evenly into 30?

- (A) 5
- (B) 6
- (C) 7
- (D) 8

6. If Jorge puts 10 flowers evenly into 3 vases, how many flowers will he have left over?

- (F) 3
- (G) 2
- (H) 1
- (I) 0



Name _____

Division · Act It Out



MA.4.A.6.2 Use models to represent division as: • the inverse of multiplication • as partitioning • as successive subtraction.

Solve.

1. Mr. Roberts is buying train tickets for himself, his wife, and his son. Tickets cost the same for adults and children. If he spent \$399 on 3 tickets, how much did each ticket cost?

Think: I can share 3 hundreds 9 tens 9 ones equally among 3 groups.

\$133

2. Diana has saved 684 pennies. She has decided to share the pennies equally with her sister. How many pennies will each girl get?

3. Jeremy orders 52 pencils with his name on them. The pencils come four in a pack. How many packs of pencils did Jeremy order?

4. Henry went to two different music stores to buy some new CDs. At Store A he bought 5 CDs for \$70. At Store B he bought 6 CDs for \$78. Which store had the best price for a CD and by how much?

5. Principal Griffin is buying new overhead projectors for the school. She pays \$808 for 4 projectors. How much did each projector cost?

6. Corissa works in her art studio for 75 minutes. She finishes stamping a sheet of handmade wrapping paper every 5 minutes. How many sheets of wrapping paper will she finish stamping during her time in the studio?

Lesson Check (MA.4.A.6.2)

- Ms. Kim bought 3 new monitors for the computer lab for \$366. What was the cost of each monitor?
 - (A) \$102
 - (B) \$120
 - (C) \$122
 - (D) \$1,098
- Kaleb has 48 feet of ribbon. He cuts the ribbon into 4 equal pieces. How many feet long is each piece of ribbon Kaleb cuts?
 - (F) 14 feet
 - (G) 12 feet
 - (H) 10 feet
 - (I) 8 feet

Review Grade 4 (MA.4.A.1.1)

- Madelyn spends \$56 on 7 new shirts. If she spent the same amount of money on each shirt, which number sentence can be used to find the cost of each shirt?
 - (A) $\square \times 8 = 56$
 - (B) $\square \times 7 = 56$
 - (C) $\square \times 6 = 56$
 - (D) $\square \times 56 = 7$
- In the number sentence below, which number does the \star represent?

$$6 \times \star = 36$$
 - (F) 8
 - (G) 7
 - (H) 6
 - (I) 5

← SPIRAL REVIEW

Look Back (MA.3.A.1.3, MA.4.A.6.2)

- If $16 \div 2 = \square$, then which statement must be true?
 - (A) $16 \times 2 = \square$
 - (B) $\square \times 16 = 2$
 - (C) $\square \div 2 = 16$
 - (D) $\square \times 2 = 16$
- Oscar is setting the table for dinner. He gets a fork, a spoon, and a knife from the utensil drawer for each person eating. If Oscar gets 15 utensils from the drawer, how many people will be eating?
 - (F) 5
 - (G) 4
 - (H) 3
 - (I) 2

← SPIRAL REVIEW

Name _____

Model Division by Sharing



MA.4.A.6.2 Use models to represent division as: • the inverse of multiplication • as partitioning • as successive subtraction.

Use base-ten blocks to divide.

1. $86 \div 4$

21 r2

2. $48 \div 3$

3. $95 \div 8$

4. $177 \div 3$

5. $7 \overline{)58}$

6. $140 \div 10$

7. $12 \overline{)132}$

8. $370 \div 6$

9. $250 \div 2$

10. $10 \overline{)82}$

11. $39 \div 2$

12. $11 \overline{)165}$

13. $80 \div 4$

14. $12 \overline{)150}$

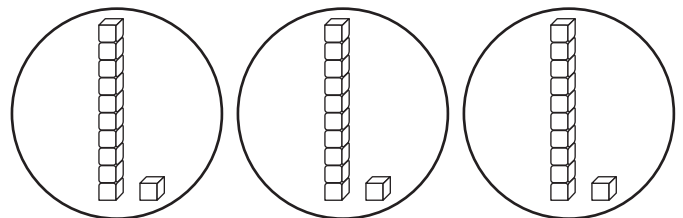
15. $4 \overline{)504}$

16. $113 \div 5$

Problem Solving

17. There are 126 people waiting in line to watch the noon show in the museum theater. If there are 11 rows of seats in the theater, and 11 seats in each row, can everyone waiting in line see the noon show? If not, how many will need to wait for the next show?

18. Courtney is using base-ten blocks to model a division problem.



Which division problem is shown by Courtney's model?

Lesson Check (MA.4.A.6.2)

- Kathryn modeled the division problem $102 \div 3$ using base-ten blocks. How many tens should be in each group?
 - (A) 2
 - (B) 3
 - (C) 4
 - (D) 5
- There are 87 people waiting to go on a roller coaster ride. Each row of the coaster's car has 8 hanging chairs. If 7 people are still left in line after the car is boarded, how many rows does the car have?
 - (F) 8
 - (G) 9
 - (H) 10
 - (I) 11

Review Grade 4 (MA.4.A.4.2)

- Tanner is 9 years old. This is half as old as his brother Joel. Which equation can be used to find how old Joel is?
- The Sweet Shoppe sold 50 cupcakes on Tuesday. On Monday, the shop sold 24 fewer cupcakes.



SPIRAL REVIEW

(A) $9 = j \times 2$

(B) $2 = j \times 9$

(C) $9 = j \div 2$

(D) $9 = 2 \div j$

$50 _ _ 24 _ _ \text{Monday}$

In order to find how many cupcakes the shop sold on Monday, which symbols should fill the blanks above in the order listed?

(F) +, =

(H) -, =

(G) =, -

(I) +, -

Look Back (MA.3.A.1.2, MA.4.A.6.2)

- Adriana divided her 20 books into 4 piles. If the same number of books is in each pile, how many books are in a pile?
 - (A) 4
 - (B) 5
 - (C) 6
 - (D) 7
- Which number sentence is true?
 - (F) $0 \div 6 = 6$
 - (G) $6 \div 6 = 6$
 - (H) $6 \div 6 = 0$
 - (I) $6 \div 1 = 6$



SPIRAL REVIEW

Name _____

Model Division by Using Repeated Subtraction

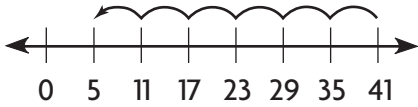


MA.4.A.6.2 Use models to represent division as: • the inverse of multiplication • as partitioning • as successive subtraction.

Use a number line to divide.

1. $41 \div 6$ 6 r5

2. $54 \div 18$ _____



Use repeated subtraction to divide.

3. $96 \div 8$ _____

4. $256 \div 50$ _____

5. $81 \div 3$ _____

6. $94 \div 4$ _____

7. $240 \div 60$ _____

8. $133 \div 10$ _____

Problem Solving **REAL WORLD**

9. The Florida manatee grows to about 144 inches in length. If there are 12 inches in one foot, how many feet long does the Florida manatee grow to?

10. When resting, a manatee needs to surface to take a breath only every 20 minutes. Liam observed a resting manatee over a period of 120 minutes. How many times did Liam see the manatee surface for breath?



Lesson Check (MA.4.A.6.2)

- Ms. Carlisle has 125 stickers. She wants to give each of her 15 students the same number of stickers. What is the greatest number of stickers that each student can receive?
(A) 6 (C) 8
(B) 7 (D) 9
- An average commercial lasts 30 seconds. An average commercial break during a television show lasts 180 seconds. How many commercials are played during a commercial break?
(F) 3 (H) 9
(G) 6 (I) 60

Review Grade 4 (MA.4.A.1.2)

- Which of the following shows how to use mental math and addition to find the product of 8×324 ?
(A) $(8 \times 3) + (8 \times 2) + (8 \times 4)$
(B) $(8 \times 300) + (8 \times 2) + (8 \times 40)$
(C) $(8 \times 300) + (8 \times 20) + (8 \times 4)$
(D) $(8 \times 3) + (80 \times 20) + (800 \times 400)$
- Maya uses 28 evergreen boughs to make one wreath. If she makes 6 wreaths to raffle off at the Winter Fest, how many evergreen boughs will she use?
(F) 192 (H) 128
(G) 168 (I) 124



Look Back (MA.3.A.1.2, MA.4.A.6.2)

Use the following table for 5–6.

Grocery Costs	
Produce	Price
Lettuce	3 heads for \$6
Asparagus	3 bunches for \$9
Pumpkins	2 for \$8
Avocados	4 for \$4

- Which item has the lowest cost per item?
(A) lettuce (C) pumpkin
(B) asparagus (D) avocado
- Kennedy bought 1 bunch of asparagus and two heads of lettuce. How much did she spend?
(F) \$21 (H) \$9
(G) \$15 (I) \$7



Name _____

Model Division by Using Inverse Operations



MA.4.A.6.2 Use models to represent division as: • the inverse of multiplication • as partitioning • as successive subtraction.

Choose a method to divide.

1. $68 \div 17$

4

2. $112 \div 8$

3. $56 \div 2$

4. $170 \div 10$

5. $156 \div 6$

6. $110 \div 11$

7. $105 \div 7$

8. $72 \div 3$

9. $74 \div 2$

10. $133 \div 19$

11. $135 \div 5$

12. $92 \div 4$

Problem Solving

13. Breanna has 72 orange blossoms. She uses the same number of orange blossoms on each of 4 centerpieces she is creating. How many orange blossoms are on each centerpiece?

14. Kenneth walks to the top of Britton Hill, Florida's highest point of elevation at 345 feet. He stops to take a sip of water at every 15 feet of elevation he climbs. How many sips of water will Kenneth take during his walk?

Lesson Check (MA.4.A.6.2)

- Brady has 84 dominos. He has 3 full sets. There is the same number of dominos in each set. How many dominos are in each set?
 - (A) 18
 - (B) 21
 - (C) 28
 - (D) 31
- Daniela uses the following model to find the quotient of $96 \div 6$.

	?	?
6	60	36

 What is the quotient of $96 \div 6$?
 - (F) 4
 - (G) 16
 - (H) 60
 - (I) 96

Review Grade 4 (MA.4.A.1.2)

- Mr. Brooks gives 34 spelling quizzes during the school year. He prints out a study sheet for each of his 21 students the night before the quiz. How many study sheets will Mr. Brooks print out during the school year?
 - (A) 962
 - (B) 818
 - (C) 714
 - (D) 526
- Mrs. Biggs hands out 42 recorders to her music class. There are 6 equal groups of students. If each student receives a recorder, how many students are in each group?
 - (F) 5
 - (G) 7
 - (H) 8
 - (I) 9

Look Back (MA.3.A.6.1, MA.4.A.6.2)

- Ashton has 24 different animal magazines. He puts 8 away in a drawer, donates 8 to the library, and puts the rest in a magazine holder on his desk. How many magazines went in the holder?
 - (A) 6
 - (B) 7
 - (C) 8
 - (D) 9
- What is the difference of $120 - 60$?
 - (F) 6
 - (G) 40
 - (H) 60
 - (I) 80



Name _____

Chapter 6 Extra Practice

Lesson 6.1 (pp. 233–236)

Do you need to find the *number of equal groups* or the *number in each group*? Model the problem. Record the answer.

- | | |
|--|--|
| <p>1. Cindy exercises by doing 100 jumping jacks a day. She does them in sets of 25. How many sets does she do?</p> <p>_____</p> <p>_____</p> | <p>2. Neil can put 10 baseball cards on a page of his scrapbook. He has 60 baseball cards. How many pages can he fill?</p> <p>_____</p> <p>_____</p> |
| <p>3. Mona has 60 ribbons for freestyle swimming. She wants to arrange them on her bedroom wall in rows of 10 ribbons. How many rows of ribbons will she have?</p> <p>_____</p> <p>_____</p> | <p>4. José has 75 nickels. He wants to put his nickels in 15 piles. How many nickels are in each pile?</p> <p>_____</p> <p>_____</p> |

Underline the sentence that answers the problem.

- | | |
|--|---|
| <p>5. Julia has 42 bows. She wants to put the same number of bows in 6 tin boxes. How many bows will she put in each tin box?</p> <p>a. She will need 7 boxes.</p> <p>b. There will be 7 bows in each box.</p> | <p>6. Frank has 60 sheets of lined paper. He wants to put 12 sheets of paper in each notebook. How many notebooks will he need?</p> <p>a. He will need 5 notebooks.</p> <p>b. There will be 5 sheets of paper in each notebook.</p> |
|--|---|

Lesson 6.2 (pp. 237–240)

Use counters to help find the quotient and remainder.

- | | | | |
|--|--|--|--|
| <p>1. $44 \div 5$</p> <p>_____</p> | <p>2. $8 \overline{)21}$</p> <p>_____</p> | <p>3. $4 \overline{)75}$</p> <p>_____</p> | <p>4. $19 \div 4$</p> <p>_____</p> |
| <p>5. $7 \overline{)60}$</p> <p>_____</p> | <p>6. $80 \div 9$</p> <p>_____</p> | <p>7. $25 \div 3$</p> <p>_____</p> | <p>8. $6 \overline{)77}$</p> <p>_____</p> |

Lesson 6.3 (pp. 241–244)

1. Ricardo collected 64 rocks. He puts them in equal groups in 8 bags. How many rocks will be in each bag?

2. Kelly has 29 markers in 4 colors. She gives an equal number to each of 7 friends. How many markers will Kelly keep for herself?

3. Ken and his mom make 8 batches of 12 oatmeal cookies for a school event. Ken wants to keep 24 cookies for his family's dessert. How many cookies does Ken bring to school?
Draw a quick picture to show the number of cookies Ken keeps and the number of cookies he brings to school.

4. Meg has a large bag of buttons. She counts the buttons. There are 72 buttons. She makes piles of 6 buttons. How many piles of buttons will she have? Draw a quick picture to show the piles of buttons.

5. Mrs. Jackson buys 144 pencils for her class. Pencils are sold by the pack. There are 12 pencils in each pack. How many packs of pencils does she buy?

6. Casey has 15 red apples and 12 green apples. He gives an equal number to 6 of his friends. How many apples does Casey keep for himself?

Lesson 6.4 (pp. 245–248)

Use base-ten blocks to divide.

1. $42 \div 3$

2. $29 \div 3$

3. $81 \div 9$

4. $48 \div 8$

5. $143 \div 5$

6. $72 \div 6$

7. $63 \div 7$

8. $98 \div 4$

9. $11 \overline{)121}$

10. $7 \overline{)42}$

11. $6 \overline{)82}$

12. $5 \overline{)145}$

13. $4 \overline{)124}$

14. $13 \overline{)78}$

15. $3 \overline{)97}$

16. $6 \overline{)52}$

Lesson 6.5 (pp. 251–254)

Use a number line to divide.

1. $15 \div 4$

2. $16 \div 2$

3. $22 \div 4$

4. $17 \div 3$

5. $11 \div 1$

6. $21 \div 4$

7. $149 \div 13$

8. $133 \div 17$

9. $88 \div 22$

Use repeated subtraction to divide.

10. $130 \div 5$

11. $47 \div 7$

12. $7 \overline{)92}$

13. $33 \div 3$

14. $14 \overline{)98}$

15. $6 \overline{)122}$

16. $5 \overline{)160}$

17. $77 \div 3$

18. $154 \div 20$

19. $148 \div 15$

20. $16 \overline{)128}$

21. $27 \overline{)225}$

Lesson 6.6 (pp. 255–258)

Choose a method to divide.

1. $88 \div 8$

2. $48 \div 16$

3. $108 \div 9$

4. $152 \div 19$

5. $74 \div 2$

6. $170 \div 10$

7. $660 \div 10$

8. $120 \div 5$

9. $162 \div 6$

Use the rule to find the missing numbers.

10. **Rule:** Divide the input by 9.

Input	Output
117	
135	
153	

11. **Rule:** Divide the input by 16.

Input	Output
96	
144	
	12

12. **Rule:** Divide the input by 25.

Input	Output
225	
	12
450	

13. Janice wants to put 60 photos in an album. Her album holds 4 photos on each page. How many pages of the album will she need?

14. Dan has a box of coins. He sorts the coins into 5 piles of dimes and 3 piles of nickels. Each pile has 10 coins. How much money does he have?

15. Mr. Edwards has \$175 to spend on paperback books. If each paperback costs \$5, how many books can he buy?

16. Sal buys 15 muffins to give to 7 friends. If he gives the same number to each friend, how many muffins will each friend get? How many muffins will Sal have left?
