

# ***Sports Math***

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# INTRODUCTION

The *Sports Math* program is a multimedia series of lessons designed to provide highly individualized help for remedial math students at Jr. or Sr. high school. Each lesson in the series consists of audio media and three blackline *Scoresheets*. Students participate in a lesson by listening to the audio and responding on the *Scoresheets* to problems posed during the commentary between sports announcers on the audio.

The audio media combine expert instruction in the four basic operations with the excitement and color of familiar sports. Skill development activities center around the math terminology used in the sports included in the program. *Scoresheets* employ sports scenes and figures in cartoon form along with mathematics material correlated to the audio.

Each lesson offers a unique source of remediation for students having difficulty with basic math operations. All math concepts are pre-

sented in simple terms and are expanded in step-by-step sequences of increasing difficulty. Lessons involving each operation are developed sequentially throughout the program. Therefore, lessons 1 and 2 (addition) should be used in sequence as should lessons 3 through 5 (subtraction), 6 through 9 (multiplication), and 10 through 12 (division).

Because of the range of abilities within most classrooms and the individual response times necessary to complete the exercises on the *Scoresheets*, *Sports Math* lessons can be used most effectively on an individual basis. However, the program may be used by small groups of remedial math students who are performing at approximately the same level in mathematics.

Materials needed to complete each lesson include audio media and player, three *Scoresheets*, and a pencil.

# USING THE PROGRAM

## THE AUDIO

The audio lessons in *Sports Math* employ a motivational technique designed to capture and hold the interest of students who have experienced difficulty in mathematics. Each lesson opens with a special audio effect related to the sports action highlighted in the lesson. This is usually followed by dialogue between sports announcers who discuss the action in progress, give players' records and game statistics, or engage in humorous byplay relevant to the sport. This provides the lead-in to the skill-building activities on the *Scoresheets*. The *Sports Math* narrator uses a friendly, positive approach to the math instruction.

Each lesson begins with an explanation of a sample problem found on the first page of the *Scoresheets*. Students are then given directions for completing the mathematics activities, which are set firmly within the context of the sports action. The narrator checks all student responses, providing immediate feedback and reinforcement of each skill taught in the lesson.

Timed pauses are programmed into the audio to allow the student to complete brief responses on the *Scoresheets*. However, when more than a few seconds are needed to complete a response, an electronic tone signals the student to stop. Students should be reminded that they may stop whenever additional response time is needed, or replay any material they wish to hear again.

The use of headsets is recommended to avoid distracting other students in the classroom and to reinforce the interaction between student and narrator.

The running times of the audio average approximately 15 minutes. The average working time of each lesson is about 25 to 30 minutes. It should be remembered that this time is only an approximation. Since the student stops and starts the audio several times during the course of each

lesson to complete exercises, the actual time needed will depend on the student's working speed.

## THE SCORESHEETS

Three *Scoresheets* duplicated from blacklines are used in each lesson of the program. The *Scoresheets* contain lively illustrations depicting action from the sport presented on the audio, and include carefully arranged math exercises.

In each lesson, the first two *Scoresheets* are completed by the students as the audio presentation progresses. The responses on these pages are checked and corrected by the narrator. *Scoresheets* number three contain review exercises which the students are asked to finish after the audio has finished playing. Responses on this page will provide you with a means of informally evaluating how well the students have understood and applied the concepts presented in the lesson. You may, in the interest of time, decide that the students should complete the review page as homework or during another class session. If so, be sure to explain this before the lesson is begun.

## THE TEACHER'S GUIDE

This guide includes individual summaries of the lessons in the program. Each summary lists the skills objectives for the lesson, a description of the activities on pages 1 and 2 of the *Scoresheets*, and an *Evaluation* portion which deals with page 3, the review page of the lesson. For convenience in evaluating student performance, each lesson guide includes reproductions of the *Scoresheets*, with correct answers overprinted. The reproduction for *Scoresheet* number three, the review page in each lesson, is shown in full size to facilitate checking of students' answers.

# Lesson 1: Addition's Big Inning

## Objectives

1. to develop greater understanding of the concepts of expanded notation and the renaming process
2. to provide practice in regrouping to tens and hundreds

## In the Lesson


A baseball game, the humorous byplay between two sports announcers, and an interview with "one of the greatest catchers of all times," Johnny Chair, provide the framework within which the addition problems in this lesson are presented.

As the lesson unfolds, the excitement of the game is captured by the announcers who report on the action, comment on the players, and discuss game statistics. Some batting statistics are represented in the first three problems on *Scoresheet* number one. Guided by the narrator, students use expanded notation to find the answers to these addition problems. Students then work three word problems on the page, again using expanded notation to do the calculations.

The interview with Johnny Chair is next. In the course of the interview, Johnny admits that while he is on the field, his mind is sometimes on his personal batting statistics instead of on the game. Monopolizing the conversation, he explains how he uses addition to find the total number of hits he has so far this year, and expanded notation is reviewed. Students then work the addition problems on the page, renaming and regrouping to tens and hundreds.

**Evaluation:** Students complete *Scoresheet* number three after the audio has finished playing. Their performance on this page will give you an indication of how well they have understood the concepts taught in the lesson.

LESSON 1  
SCORESHEET NO. 1





ADDITION'S BIG INNING

1.  $24 = 20 + 4$   
 $+ 24 = +20 + 4$   
 $\boxed{40} + \boxed{8} = \boxed{48}$

2.  $112 = 100 + 10 + 2$   
 $+ 125 = +100 + 20 + 5$   
 $\boxed{200} + \boxed{30} + \boxed{7} = \boxed{237}$

3.  $235 = 200 + 30 + 5$   
 $+ 263 = +200 + 60 + 3$   
 $400 + 90 + 8 = \boxed{498}$

---

4. Last year the Lions played 162 games. So far this year they have played 135. How many games have the Lions played altogether?

$$\begin{array}{r} 100 + 60 + 2 \\ + 100 + 30 + 5 \\ \hline 200 + 90 + 7 = \boxed{297} \end{array}$$


5. The Lions broke 314 bats. They lost 563 balls. How many items did they lose altogether?

$$\begin{array}{r} 300 + 10 + 4 \\ + 500 + 60 + 3 \\ \hline 800 + 70 + 7 = \boxed{877} \end{array}$$

6. Lion fans ate 634 hot dogs and 355 bags of peanuts. How many were eaten altogether?


$$\begin{array}{r} 600 + 30 + 4 \\ + 300 + 50 + 5 \\ \hline 900 + 80 + 9 = \boxed{989} \end{array}$$

LESSON 1  
SCORESHEET NO. 2



ADDITION'S BIG INNING

7. A.  $\begin{array}{r} 76 \\ + 18 \\ \hline \end{array}$  B.  $\begin{array}{r} 70 + 6 \\ + 10 + 8 \\ \hline 14 \end{array}$  C.  $\begin{array}{r} 10 \\ 70 + 6 \\ + 10 + 8 \\ \hline 4 \end{array}$  D.  $\begin{array}{r} 10 \\ 70 + 6 \\ + 10 + 8 \\ \hline 90 + 4 \end{array}$  E.  $\boxed{94}$





8.  $47 = 40 + 7$   
 $+ 38 = +30 + 8$   
 $80 + 5 = \boxed{85}$

For regrouping  
 $\boxed{100} \leftarrow 10$

---

9.  $286 = 200 + 80 + 6$   
 $+ 195 = 100 + 90 + 5$   
 $400 + 80 + 1 = \boxed{481}$

---

10.  $356 = 300 + 50 + 6$   
 $+ 485 = 400 + 80 + 5$   
 $800 + 40 + 1 = \boxed{841}$

# SPORTS MATH

## LESSON 1 SCORESHEET NO. 3

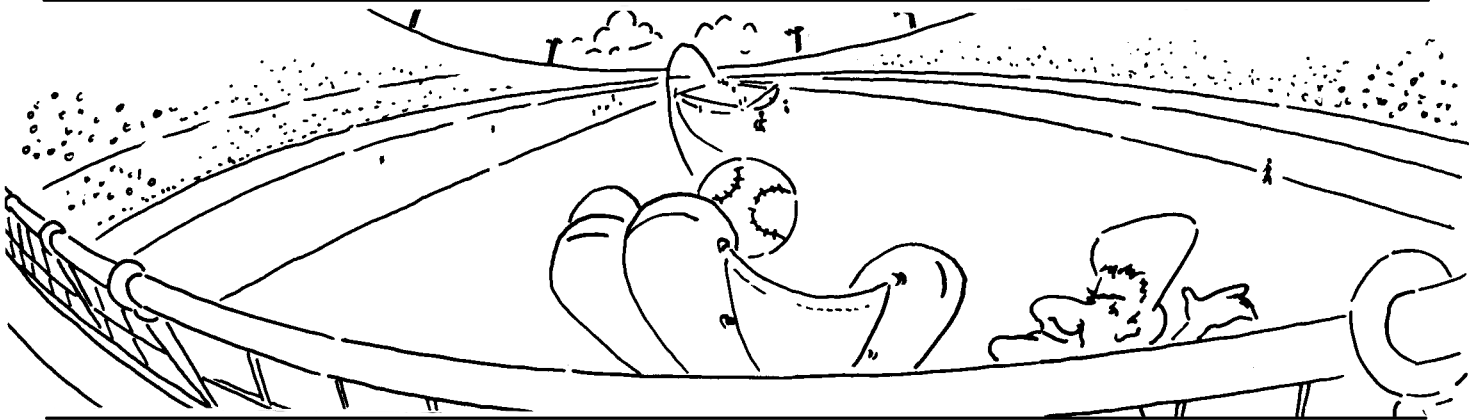
### ADDITION'S BIG INNING

$$\begin{array}{r} 11. \quad 45 = 40 + 5 \\ + 23 = + 20 + 3 \\ \hline 60 + 8 = 68 \end{array}$$



$$\begin{array}{r} 12. \quad 58 = 50 + 8 \\ + 37 = + 30 + 7 \\ \hline 90 + 5 = 95 \end{array}$$

$$\begin{array}{r} 13. \quad 153 = 100 + 50 + 3 \\ + 342 = + 300 + 40 + 2 \\ \hline 400 + 90 + 5 = 495 \end{array}$$



$$\begin{array}{r} 14. \quad 256 = 200 + 50 + 6 \\ + 378 = + 300 + 70 + 8 \\ \hline 600 + 30 + 4 = 634 \end{array}$$

$$\begin{array}{r} 15. \quad 487 = 400 + 80 + 7 \\ + 396 = + 300 + 90 + 6 \\ \hline 800 + 80 + 3 = 883 \end{array}$$

$$\begin{array}{r} 16. \quad 578 = 500 + 70 + 8 \\ + 343 = + 300 + 40 + 3 \\ \hline 900 + 20 + 1 = 921 \end{array}$$

$$\begin{array}{r} 17. \quad 489 = 400 + 80 + 9 \\ + 765 = + 700 + 60 + 5 \\ \hline 1200 + 50 + 4 = 1254 \end{array}$$



## Lesson 2: Additional Jump Shots

### Objectives

1. to provide practice in using the vertical algorithm employing two- and three-digit addends
2. to reinforce understanding of place value
3. to provide further practice in regrouping and renaming to tens and hundreds


### In the Lesson

Basketball is the sport highlighted in this lesson, and the rivalry between two evenly matched teams provides the background for doing the work on the *Scoresheets*.

As the lesson opens, the Jackson Tigers and the Franklin Panthers have challenged each other to a jump-shot and free-throw contest. Presented on the first page of the *Scoresheets* are the results of the contest. Students use addition without renaming to find the total number of baskets made by each team in each event. They learn that the jump-shot contest resulted in a tie, and that the Panthers won the free-throw contest. Students are then led by the narrator through a step-by-step explanation of regrouping and renaming as they figure the total number of jump-shots made by both teams together, and the total number of free throws made by both teams.



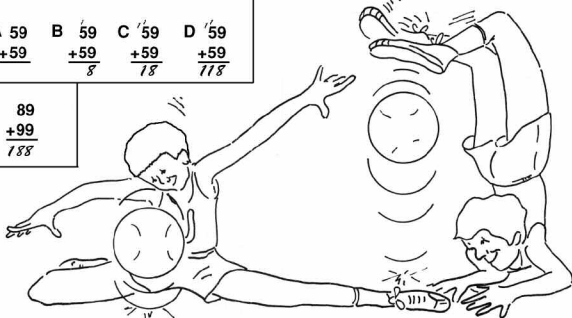
The pregame activities continue, and some statistics on past contests between the two teams are given. These statistics are presented in the addition problems on *Scoresheet* number two. Students add columns of two- and three-place numerals, regrouping and renaming to tens and hundreds.


**Evaluation:** *Scoresheet* number three is completed by the students after the audio has finished playing. Their performance on this page will give you an indication of their understanding of the renaming process.



LESSON 2  
SCORESHEET NO. 1


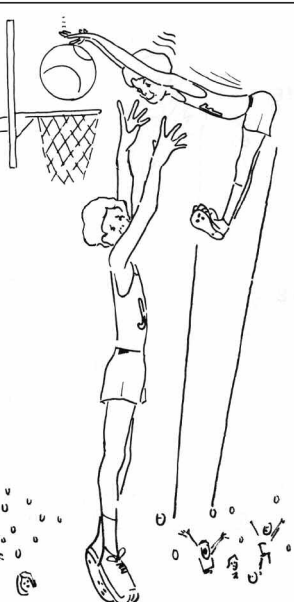
**ADDITIONAL JUMP SHOTS**

	<p><b>1. Jackson</b></p> $\begin{array}{r} 11 \\ 10 \\ 3 \\ 22 \\ 13 \\ \hline 59 \end{array}$	<p><b>2. Franklin</b></p> $\begin{array}{r} 13 \\ 12 \\ 11 \\ 10 \\ 13 \\ \hline 59 \end{array}$								
<p><b>3. Jackson</b></p> $\begin{array}{r} 10 \\ 23 \\ 14 \\ 21 \\ \hline 21 \\ 89 \end{array}$	<p><b>4. Franklin</b></p> $\begin{array}{r} 21 \\ 20 \\ 11 \\ 34 \\ \hline 13 \\ 99 \end{array}$									
<p><b>5.</b></p> <table style="width: 100%; text-align: center;"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> </tr> <tr> <td><math>\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}</math></td> <td><math>\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}</math></td> <td><math>\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}</math></td> <td><math>\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}</math></td> </tr> </table>	A	B	C	D	$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$	$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$	$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$	$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$		
A	B	C	D							
$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$	$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$	$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$	$\begin{array}{r} 59 \\ +59 \\ \hline 118 \end{array}$							
<p><b>6.</b></p> $\begin{array}{r} 89 \\ +99 \\ \hline 188 \end{array}$										



LESSON 2  
SCORESHEET NO. 2

**ADDITIONAL JUMP SHOTS**

	<p><b>7.</b></p> $\begin{array}{r} 67 \\ +75 \\ \hline 142 \end{array}$	<p><b>8.</b></p> $\begin{array}{r} 28 \\ 27 \\ +26 \\ \hline 81 \end{array}$
<p><b>9.</b></p> $\begin{array}{r} 19 \\ 36 \\ 27 \\ \hline 82 \end{array}$	<p><b>10.</b></p> $\begin{array}{r} 126 \\ +128 \\ \hline 254 \end{array}$	
<p><b>11.</b></p> $\begin{array}{r} 367 \\ 485 \\ 299 \\ \hline 1151 \end{array}$	<p><b>12.</b></p> $\begin{array}{r} 675 \\ +789 \\ \hline 1464 \end{array}$	

# SPORTS MATH

LESSON 2  
SCORESHEET NO. 3

## ADDITIONAL JUMP SHOTS

Add these:

$$\begin{array}{r} 13. \quad 35 \\ \quad 34 \\ \hline \quad 26 \\ \hline \quad 95 \end{array}$$

$$\begin{array}{r} 14. \quad 52 \\ \quad 14 \\ \hline \quad 23 \\ \hline \quad 89 \end{array}$$

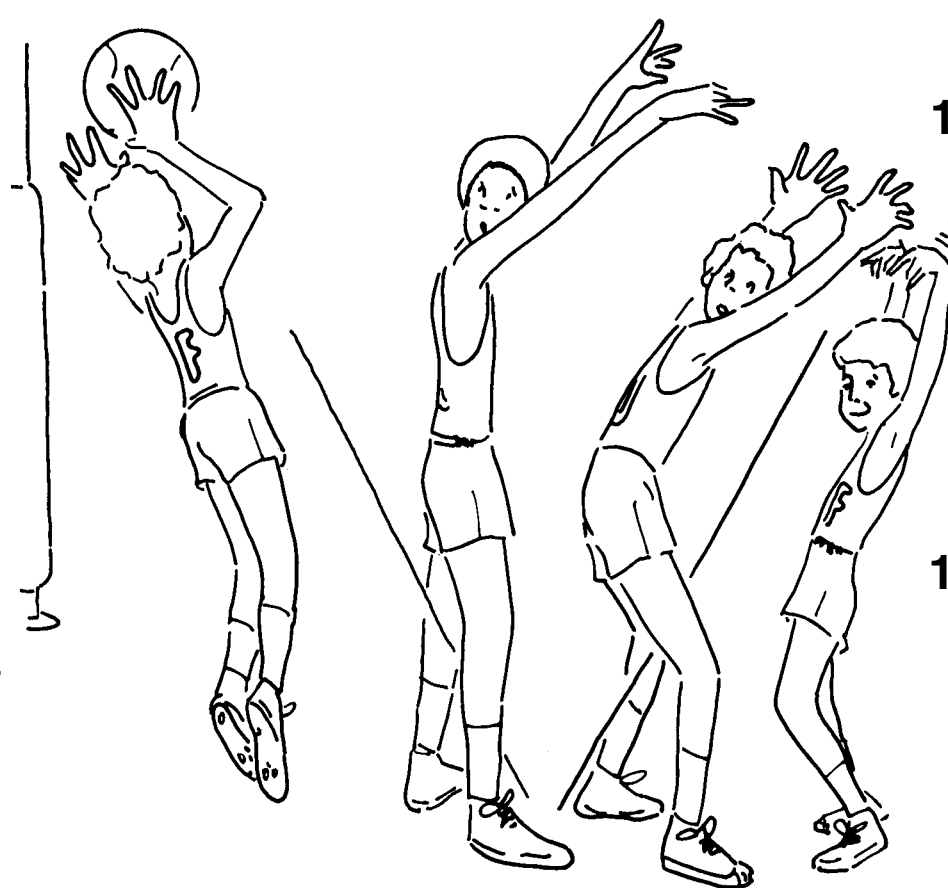
$$\begin{array}{r} 15. \quad 27 \\ \quad 46 \\ \hline \quad 79 \\ \hline \quad 152 \end{array}$$

$$\begin{array}{r} 16. \quad 43 \\ \quad 58 \\ \quad 69 \\ \quad 74 \\ \hline \quad 86 \\ \hline \quad 330 \end{array}$$

$$\begin{array}{r} 17. \quad 26 \\ \quad 34 \\ \quad 52 \\ \quad 18 \\ \hline \quad 39 \\ \hline \quad 169 \end{array}$$

$$\begin{array}{r} 18. \quad 243 \\ + 335 \\ \hline \quad 578 \end{array}$$

$$\begin{array}{r} 19. \quad 435 \\ + 289 \\ \hline \quad 724 \end{array}$$



$$\begin{array}{r} 20. \quad 347 \\ + 286 \\ \hline \quad 633 \end{array}$$

$$\begin{array}{r} 21. \quad 483 \\ + 834 \\ \hline \quad 1317 \end{array}$$

$$\begin{array}{r} 22. \quad 457 \\ \quad 389 \\ \hline \quad 654 \\ \hline \quad 1500 \end{array}$$

$$\begin{array}{r} 23. \quad 644 \\ \quad 287 \\ \quad 359 \\ \hline \quad 488 \\ \hline \quad 1778 \end{array}$$

## Lesson 3: Introduction to Sub-TRACK-tion

### Objective

to develop an understanding of subtraction as the inverse of addition

### In the Lesson

The math activities in this lesson are set within the context of track and field competition. All problems on the *Scoresheets* are made up of numbers that represent records or times of various female athletes as the action of the meet unfolds.

The old and new records of the first girl to compete in the broad jump are found in the first problem on *Scoresheet* number one. The narrator uses this problem to explain that subtraction is the opposite, or inverse, of addition. Students see that in order to find the difference between the two records, each number in the old record was rounded to the next highest ten, hundred, etc., until the new record was reached. The rounded numbers, when added, give the difference between the two records. Students use the method thus demonstrated to complete the work on *Scoresheet* number one.

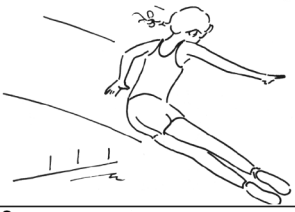
The problems on *Scoresheet* number two deal with the competition among the girls in the high hurdles and in the javelin throw. Students work these problems in the same way they worked the problems on *Scoresheet* number one.

**Evaluation:** The work on *Scoresheet* number three is completed after the audio has finished playing. Students' performance on this page will provide you with a means of informally evaluating their understanding of the concepts taught in the lesson.

SPORTS MATH

LESSON 3  
SCORESHEET NO. 1

INTRODUCTION TO SUB-TRACK-TION



1.

A  $245$  new jump  
-  $189$  old jump

B  $+ 1 = 190$

C  $+ 10 = 200$

D  $+ 45 = 245$

E  $1$   
 $+ 10$   
 $+ 45$   
-----  
Difference:  $56$

2.


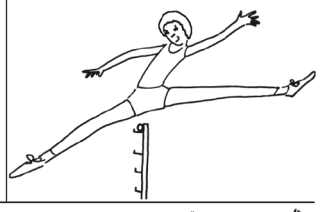

$217$  new jump  
-  $174$  old mark

$+ 6 = 180$

$+ 20 = 200$

$+ 17 = 217$

$43 =$  difference

3.

$880$   
-  $793$

$+ 7 = 800$

$+ 80 = 880$

$87 =$  difference

4.

$880$   
-  $567$

$+ 5 = 570$

$+ 30 = 600$

$+ 200 = 800$

$+ 80 = 880$

$313 =$  difference

5.

$254$   
-  $136$

$+ 4 = 140$

$+ 60 = 200$


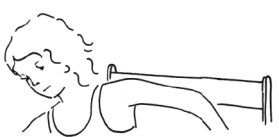
$+ 54 = 254$

$118 =$  difference

SPORTS MATH

LESSON 3  
SCORESHEET NO. 2

INTRODUCTION TO SUB-TRACK-TION

6.  $653$  Kendal  
-  $427$  Levys

$+ 3 = 430$

$+ 70 = 500$

$+ 100 = 600$

$+ 53 = 653$

$226 =$  diff.

7.  $581$  Kendal  
-  $369$  Levys

$+ 1 = 370$

$+ 30 = 400$

$+ 100 = 500$

$+ 81 = 581$

$212 =$  diff.

8.  $723$  Kendal  
-  $357$  Levys


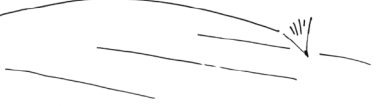
$+ 3 = 360$

$+ 40 = 400$

$+ 300 = 700$

$+ 23 = 723$

$366 =$  diff.

Javelin Throws

Alessandra	276 feet
Erica	167 feet
Aren	253 feet
Kendal	145 feet

9. Difference Between Longest and Shortest Throws

$276$   
-  $145$

$+ 5 = 150$

$+ 50 = 200$

$+ 76 = 276$

$131 =$  diff.

10. Difference Between Two Middle Throws

$253$   
-  $167$

$+ 3 = 170$

$+ 30 = 200$

$+ 53 = 253$

$86 =$  diff.

8

## INTRODUCTION TO SUB-TRACK-TION

11. 
$$\begin{array}{r} 564 \\ - 257 \\ \hline \end{array}$$

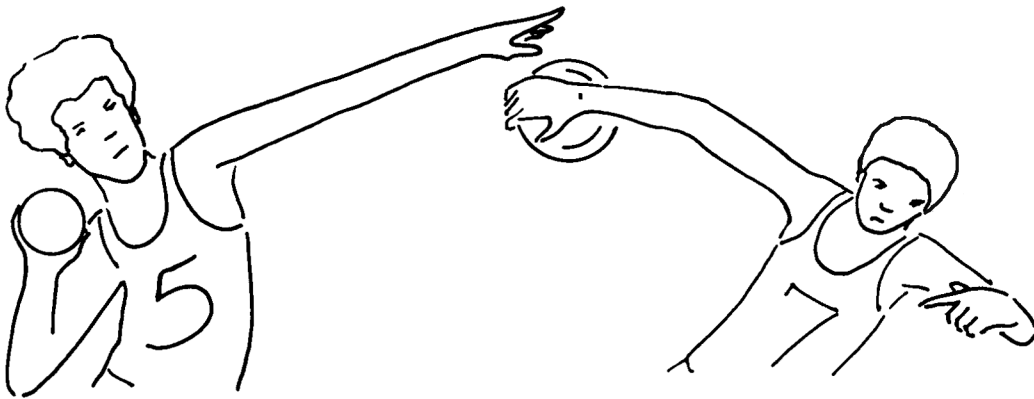
$+ 3 = 260$   
 $+ 40 = 300$   
 $+ 200 = 500$   
 $+ 64 = 564$

*307 = difference*

12. 
$$\begin{array}{r} 846 \\ - 371 \\ \hline \end{array}$$

$+ 9 = 380$   
 $+ 20 = 400$   
 $+ 400 = 800$   
 $+ 46 = 846$

*475 = difference*



13. 
$$\begin{array}{r} 946 \\ - 185 \\ \hline \end{array}$$

$+ 5 = 190$   
 $+ 10 = 200$   
 $+ 700 = 900$   
 $+ 46 = 946$

*761 = difference*

14. 
$$\begin{array}{r} 789 \\ - 634 \\ \hline \end{array}$$

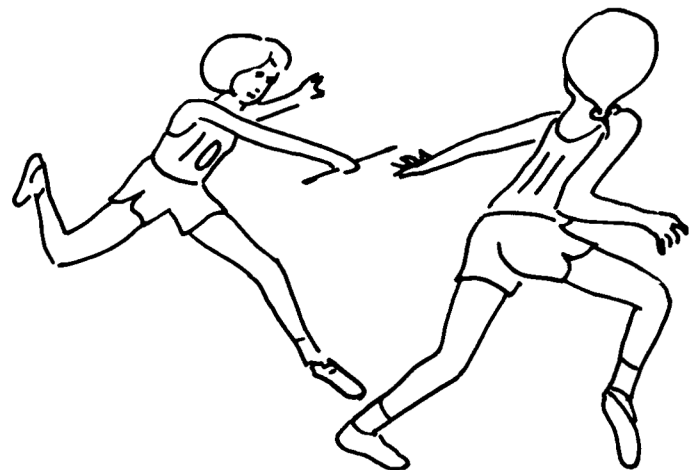
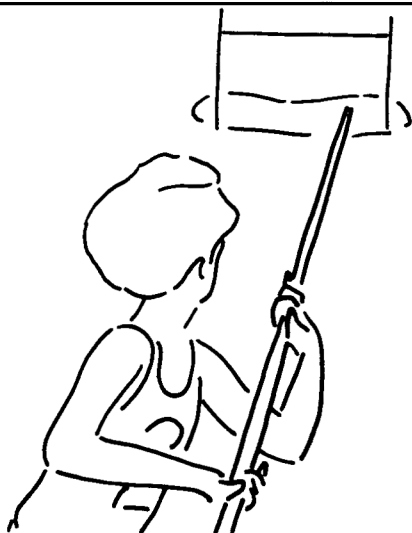
$+ 6 = 640$   
 $+ 60 = 700$   
 $+ 89 = 789$

*155 = difference*

15. 
$$\begin{array}{r} 1002 \\ - 655 \\ \hline \end{array}$$

$+ 5 = 660$   
 $+ 40 = 700$   
 $+ 300 = 1000$   
 $+ 2 = 1002$

*347 = difference*



# Lesson 4: Tackling Differences

## Objectives

1. to review expanded notation
2. to develop an understanding of the renaming process
3. to provide practice in subtracting two- and three-place numerals in place value form, without renaming

## In the Lesson

In one of the biggest mismatches of the century, the New York Titans and the Pittsburgh Squealers assemble on the football field. The announcer for the game provides a running commentary of the action as it unfolds.

The students' attention is directed to the first problem on *Scoresheet* number one, where the weights of two opposing linemen are listed. Students follow along as the narrator explains how to find the difference between the two weights using expanded notation. As the sports action continues, students use expanded notation to find the difference between the number of yards gained by the Titans and the Squealers in each team's last outing. The next problem on the page represents the total number of points scored by both teams so far this year, and students are asked to find the difference between the totals. To do the work, the numerals must first be expanded, then regrouped to tens and hundreds. This process is explained by the narrator, and the students complete the problem. They then finish the work on the page. At the end of the first half of the game, neither team has yet scored, and the announcer gives some game statistics.

On *Scoresheet* number two, students use renaming and regrouping to find the difference between the yardage gained by each team, and the difference between each team's fumble and pass-interception records. The last two problems on the page are used to demonstrate subtraction in place value form.

The lesson is capped by an exciting final game segment, and students learn that the little Squealers from Pittsburgh have defeated the mighty New York Titans.

**Evaluation:** *Scoresheet* number three is completed after the audio has finished playing. Students' performance on this page will provide you with an informal evaluation of how well they have understood the use of renaming in subtraction.

SPORTS MATH

LESSON 4  
SCORESHEET NO. 1

TACKLING DIFFERENCES

1.


$$\begin{array}{r} 287 = 200 + 80 + 7 \\ -175 = -(100 + 70 + 5) \\ \hline 100 + 10 + 2 = 112 \end{array}$$


2.  $458 = 400 + 50 + 8$   
 $-223 = -(200 + 20 + 3)$   
 $\hline 200 + 30 + 5 = 235$

3. (A)  $324 = 300 + 20 + 4$   
 $-146 = -(100 + 40 + 6)$

(C)  $300 + 20 + 4$   
 $-100 + 40 + 6$

(D)  $300 + 20 + 4$   
 $-100 + 40 + 6$   
 $\hline 100 + 70 + 8 = 178$





4.

$$\begin{array}{r} 843 = 800 + 40 + 3 \\ -659 = -(600 + 50 + 9) \\ \hline 100 + 80 + 4 = 184 \end{array}$$


SPORTS MATH


LESSON 4  
SCORESHEET NO. 2

TACKLING DIFFERENCES

5.

$$\begin{array}{r} 314 = 300 + 10 + 4 \\ -146 = -(100 + 40 + 6) \\ \hline 100 + 60 + 8 = 168 \end{array}$$






6. FUMBLES

$$\begin{array}{r} 425 = 400 + 20 + 5 \\ -281 = 200 + 80 + 1 \\ \hline 100 + 40 + 4 = 144 \end{array}$$

7. PASS INTERCEPTIONS


$$\begin{array}{r} 563 = 500 + 60 + 3 \\ -297 = 200 + 90 + 7 \\ \hline 200 + 60 + 6 = 266 \end{array}$$



8.

$$\begin{array}{r} 57 \\ -34 \\ \hline 20 \end{array}$$

23



9.

$$\begin{array}{r} 798 \\ -465 \\ \hline 300 \end{array}$$

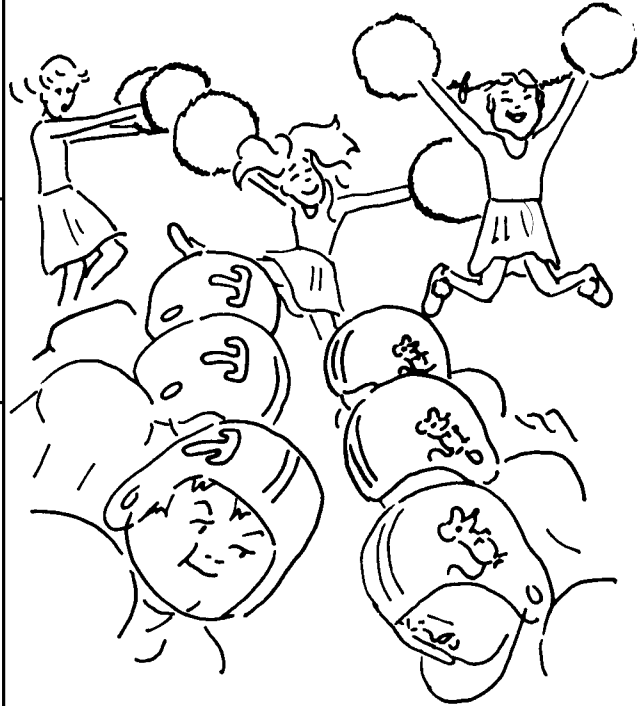
333

# SPORTS MATH

## TACKLING DIFFERENCES

10.  $638 = \overset{500}{\cancel{600}} + \overset{1}{30} + 8$   
 $-476 = -(\overset{400}{\cancel{400}} + \overset{70}{\cancel{70}} + 6)$   
 $100 + 60 + 2 = \boxed{162}$

11.  $764 = \overset{600}{\cancel{700}} + \overset{150}{\cancel{60}} + \overset{1}{4}$   
 $-496 = -(\overset{400}{\cancel{400}} + \overset{90}{\cancel{90}} + 6)$   
 $200 + 60 + 8 = \boxed{268}$

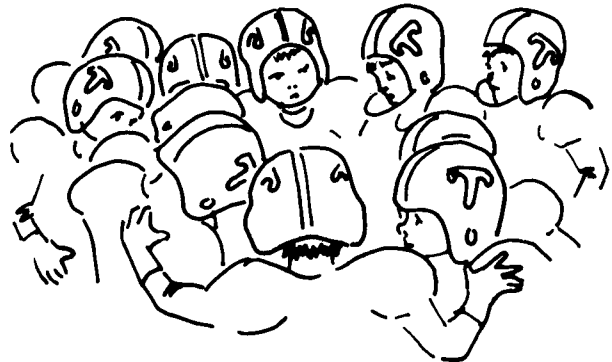


12.  $869 = \overset{700}{\cancel{800}} + \overset{1}{60} + 9$   
 $-382 = -(\overset{300}{\cancel{300}} + \overset{80}{\cancel{80}} + 2)$   
 $400 + 80 + 7 = \boxed{487}$

13.  $582 = \overset{500}{\cancel{500}} + \overset{70}{\cancel{80}} + \overset{1}{2}$   
 $-258 = -(\overset{200}{\cancel{200}} + \overset{50}{\cancel{50}} + 8)$   
 $300 + 20 + 4 = \boxed{324}$

14.  $\begin{array}{r} 8 \ 7 \\ -4 \ 2 \\ \hline \end{array}$   
 $\begin{array}{c} \textcircled{40} \ \triangle 5 \\ \downarrow \\ \boxed{45} \end{array}$

15.  $\begin{array}{r} 5 \ 4 \ 8 \\ -2 \ 2 \ 5 \\ \hline \end{array}$   
 $\begin{array}{c} \textcircled{300} \ \textcircled{20} \ \triangle 8 \\ \downarrow \\ \boxed{323} \end{array}$



# Lesson 5: The Subtraction Racquet

## Objectives

1. to provide practice in subtracting two- and three-digit numerals in place value form, with renaming
2. to give practice in dealing with zero in the minuend

## In the Lesson

The notion that tennis is a tame sport is dispelled in this lesson, which uses the action of a tennis tournament as motivation for doing the subtraction problems on the *Scoresheets*.

Students learn that a top women's tennis player has had her serve clocked at 92 miles per hour, and the first problem on *Scoresheet* number one compares this speed with an average express train's speed, which is 68 miles per hour. To find the difference in these two speeds, the narrator leads the student through a step-by-step explanation of subtraction with renaming, using place value form. The remainder of the work on the page involves renaming to tens and hundreds. Students find how many more volleys there were than lobs in a specific tennis set, and how many more balls one ball boy retrieved than another in some other sets.


As the action continues, students learn some interesting facts about the game of tennis and about tennis galleries. On *Scoresheet* number two, students are guided to find the difference between the size of the tennis galleries at Forest Mills for two consecutive years. In this problem, with zero in the tens place in the minuend, students learn how to rename from column to column in order to subtract. They then apply this skill to the renaming required on the rest of the page.

**Evaluation:** Students complete *Scoresheet* number three after the audio has finished playing. Their performance on this page will give you an indication of how well they have understood the concepts taught in the lesson.

SPORTS MATH

LESSON 5  
 SCORESHEET NO. 1

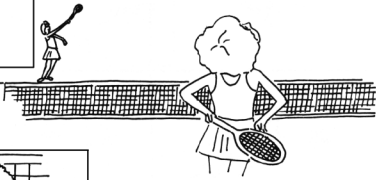
THE SUBTRACTION RACQUET




1.    A     $\begin{array}{r} 92 \\ - 68 \\ \hline \end{array}$     B     $\begin{array}{r} 92 \\ - 68 \\ \hline \end{array}$

         C     $\begin{array}{r} 92 \\ - 68 \\ \hline 24 \end{array}$

2.     $\begin{array}{r} 83 \\ - 27 \\ \hline 56 \end{array}$






3.     $\begin{array}{r} 324 \\ - 189 \\ \hline 135 \end{array}$

4.     $\begin{array}{r} 435 \\ - 267 \\ \hline 168 \end{array}$

5.     $\begin{array}{r} 543 \\ - 328 \\ \hline 215 \end{array}$



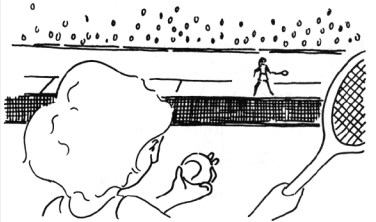
SPORTS MATH

LESSON 5  
 SCORESHEET NO. 2

THE SUBTRACTION RACQUET


6.    A     $\begin{array}{r} 904 \\ - 678 \\ \hline \end{array}$     B     $\begin{array}{r} 904 \\ - 678 \\ \hline \end{array}$

         C     $\begin{array}{r} 904 \\ - 678 \\ \hline 226 \end{array}$



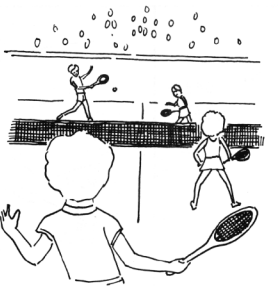
7.     $\begin{array}{r} 805 \\ - 549 \\ \hline 256 \end{array}$

8.     $\begin{array}{r} 682 \text{ wins} \\ - 289 \text{ losses} \\ \hline 393 \end{array}$



Geoffrey Scott

9.     $\begin{array}{r} 587 \text{ wins} \\ - 238 \text{ losses} \\ \hline 349 \end{array}$



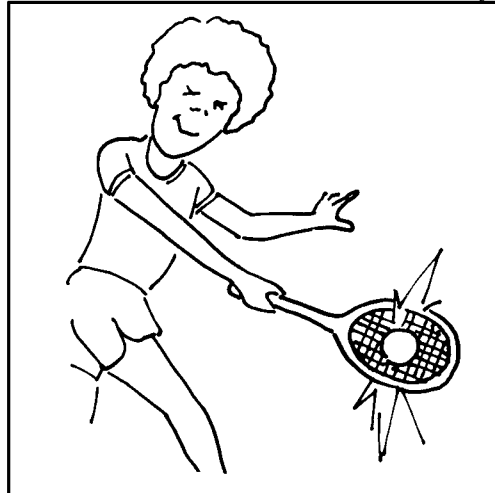
Alessandra Lynn

# SPORTS MATH

LESSON 5  
SCORESHEET NO. 3

## THE SUBTRACTION RACQUET

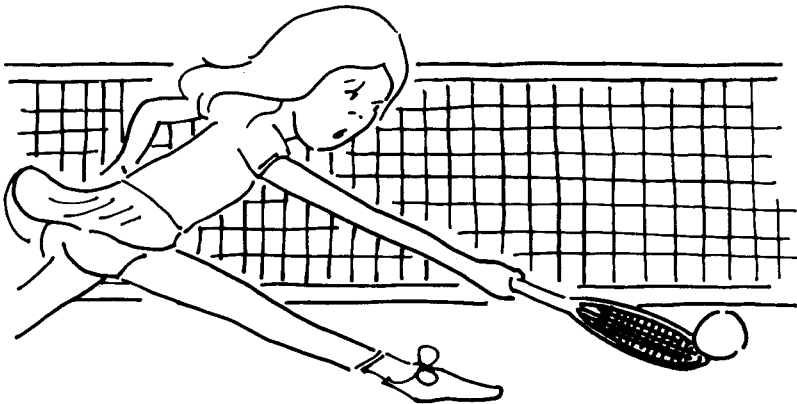
10. 
$$\begin{array}{r} 41 \\ 546 \\ - 283 \\ \hline 263 \end{array}$$



11. 
$$\begin{array}{r} 41 \\ 654 \\ - 427 \\ \hline 227 \end{array}$$

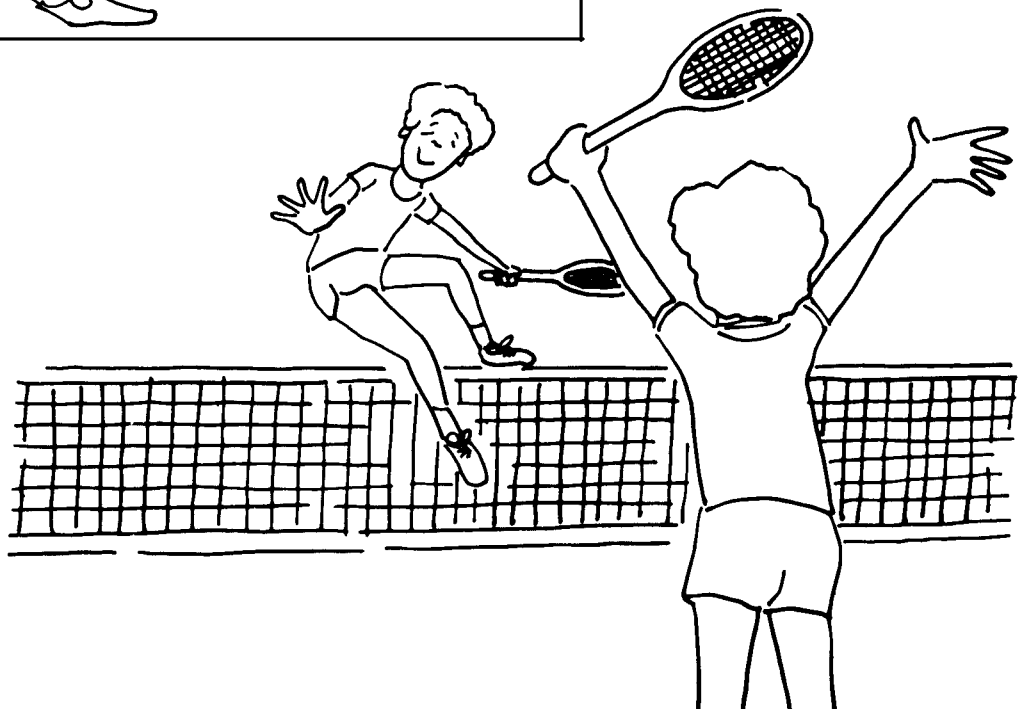
12. 
$$\begin{array}{r} 691 \\ 703 \\ - 485 \\ \hline 218 \end{array}$$

13. 
$$\begin{array}{r} 71 \\ 801 \\ - 781 \\ \hline 20 \end{array}$$



14. 
$$\begin{array}{r} 491 \\ 503 \\ - 348 \\ \hline 155 \end{array}$$

15. 
$$\begin{array}{r} 3991 \\ 4002 \\ - 1869 \\ \hline 2133 \end{array}$$



# Lesson 6: Jumping the Hurdles in Multiplication

## Objectives

1. to develop an understanding of multiplication as repeated addition of the same number
2. to increase understanding of the distributive property of multiplication using 1, 2, 5 and 10 times tables to build other multiples


## In the Lesson

A "live" broadcast of a track and field competition from Madison Rectangle Garden provides the background for this lesson. Two sports announcers give a running commentary of the track action and, along with the narrator, guide the students in working and correcting the problems presented on the *Scoresheets*.

The problems on *Scoresheet* number one represent times or distances covered by the boys and girls in various track events. Problem 1 gives an example of multiplication as repeated addition, and provides students with the background necessary for doing the remainder of the work on the page. Students practice multiplying by 3, 4 and 6 by distributing the multiplication and adding the results.

The field events on *Scoresheet* number two are next, as students listen in on the action surrounding the javelin throw. Guided by the narrator, they work a problem in which they multiply by 7 using the same method employed in the problems on *Scoresheet* number one. They are then led to discover that multiplication by 8 can be distributed as multiplication by 10 minus 2, and that multiplication by 9 can be distributed as multiplication by 10 minus 1. Using this information, they complete the problems on the page.

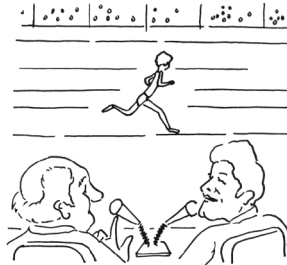
**Evaluation:** The work on *Scoresheet* number three is completed by students after the audio has finished playing. Their performance on this page will provide you with an informal evaluation of their understanding of the concepts taught in the lesson.



LESSON 6  
SCORESHEET NO. 1

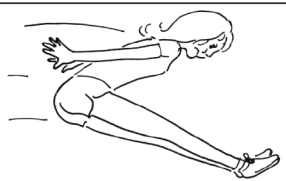
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JUMPING THE HURDLES IN MULTIPLICATION



1. A  $8 \times 4 =$

4	C	D	E	
4	4	8	8	8
4	$\times 8$	$= 8$	$= \times 4$	
4	<u>32</u>	<u>8</u>	<u>32</u>	
4				
4				
4				
+4				
				<u>32</u>



2.  $1x, 2x, 5x, 10x$


9	$2 \times$	9	$= 18$
$\times 3$	$+ 1 \times$	9	$= 9$
		$3 \times 9$	$= 27$


3.  $1x, 2x, 5x, 10x$

$4 \times 6$	$= 2 \times$	6	$= 12$
	$+ 2 \times$	6	$= 12$
		$4 \times 6$	$= 24$

4.  $1x, 2x, 5x, 10x$

$6 \times 9$	$= 1 \times$	9	$= 9$
	$+ 5 \times$	9	$= 45$
		$6 \times 9$	$= 54$

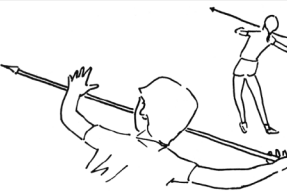




LESSON 6  
SCORESHEET NO. 2

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JUMPING THE HURDLES IN MULTIPLICATION



5.  $1x, 2x, 5x, 10x$

$7 \times 8$	$= 2 \times$	8	$= 16$
	$+ 5 \times$	8	$= 40$
		$7 \times 8$	$= 56$

6.  $1x, 2x, 5x, 10x$

$8 \times 6$	$= 10 \times$	6	$= 60$
	$- (2 \times$	$= 12)$	
		$8 \times 6$	$= 48$

7.  $1x, 2x, 5x, 10x$


$8 \times 9$	$= 10 \times$	9	$= 90$
	$- (2 \times$	$= 18)$	
		$8 \times 9$	$= 72$

8.  $1x, 2x, 5x, 10x$

$9 \times 9$	$= 10 \times$	9	$= 90$
	$- (1 \times$	$= 9)$	
		$9 \times 9$	$= 81$

9.  $1x, 2x, 5x, 10x$

$9 \times 8$	$= 10 \times$	8	$= 80$
	$- (1 \times$	$= 8)$	
		$9 \times 8$	$= 72$



14

## JUMPING THE HURDLES IN MULTIPLICATION

FOR ALL MULTIPLICATIONS, USE 1x, 2x, 5x, 10x

10.

$$\begin{array}{r}
 6 \times 7 = \underline{1} \times \quad = \textcircled{7} \\
 + \underline{5} \times \quad \mathbf{7} = \textcircled{35} \\
 \hline
 6 \times 7 = \boxed{42}
 \end{array}$$

11.

$$\begin{array}{r}
 8 \times 4 = \underline{10} \times \quad = \textcircled{40} \\
 - \underline{2} \times \quad \mathbf{4} = \textcircled{8} \\
 \hline
 8 \times 4 = \boxed{32}
 \end{array}$$

12.

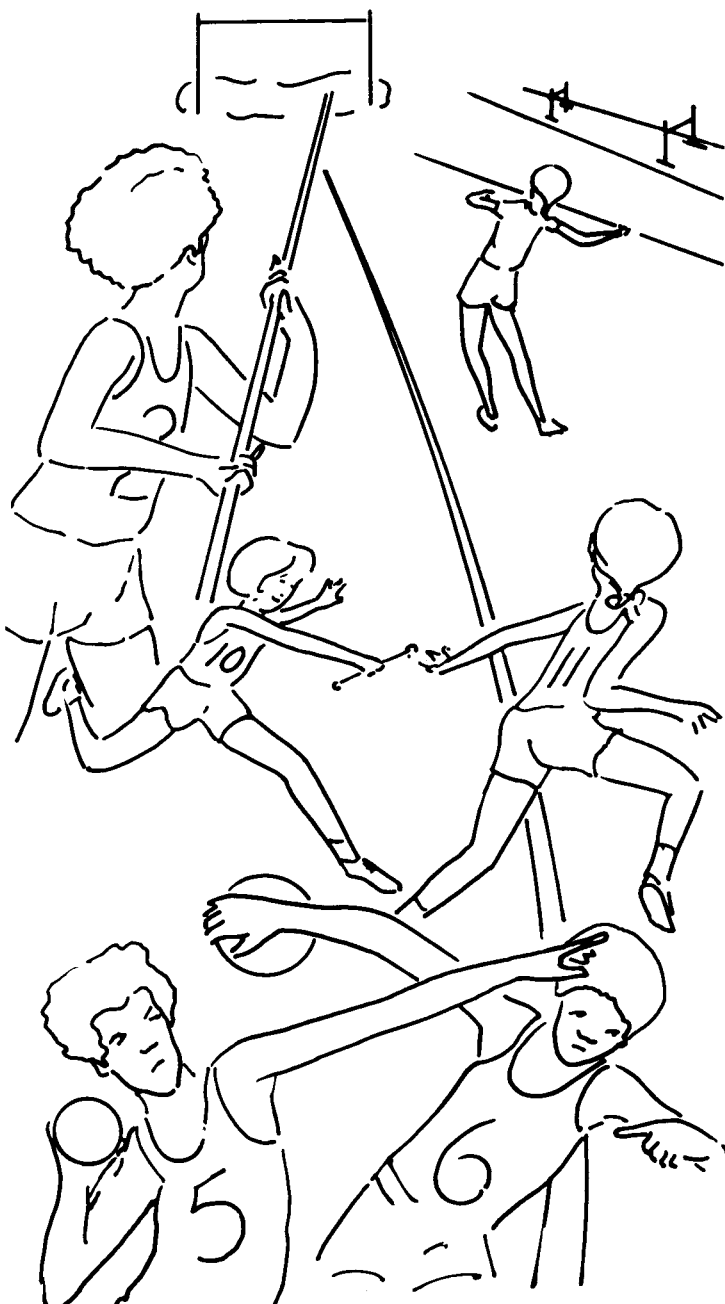
$$\begin{array}{r}
 4 \times 6 = \underline{5} \times \quad = \textcircled{30} \\
 - \underline{1} \times \quad \mathbf{6} = \textcircled{6} \\
 \hline
 4 \times 6 = \boxed{24}
 \end{array}$$

13.

$$\begin{array}{r}
 7 \times 5 = \underline{5} \times \quad = \textcircled{25} \\
 + \underline{2} \times \quad \mathbf{5} = \textcircled{10} \\
 \hline
 7 \times 5 = \boxed{35}
 \end{array}$$

14.

$$\begin{array}{r}
 9 \times 6 = \underline{10} \times \quad = \textcircled{60} \\
 - \underline{1} \times \quad \mathbf{6} = \textcircled{6} \\
 \hline
 9 \times 6 = \boxed{54}
 \end{array}$$



15.

$$\begin{array}{r}
 3 \times 8 = \underline{1} \times \quad = \textcircled{8} \\
 + \underline{2} \times \quad \mathbf{8} = \textcircled{16} \\
 \hline
 3 \times 8 = \boxed{24}
 \end{array}$$

# Lesson 7: Tee Times

## Objectives

1. to increase understanding of place value
2. to demonstrate the distributive property of multiplication in vertical algorithms
3. to provide practice in using multiplication involving two-digit numerals and one-digit numerals, with renaming

## In the Lesson

Boys and girls competing, putter to putter, in a hotly contested golf tournament provides the setting for the multiplication action in this lesson. Two sports announcers provide the color and set up the math situations which are shown on the *Scoresheets*.

Students learn that each golfer in the tournament will play 18 holes a day on each of the four days of the tournament. They find the total number of holes that each golfer must play by following the narrator's explanation of the multiplication in the first problem on *Scoresheet* number one. The problem uses the distributive property of multiplication and multiples of 10, with emphasis on place value. Students work the next problem with step-by-step guidance from the narrator, then complete the work on the page on their own.

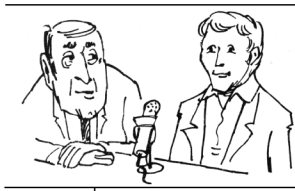
Further practice with multiplication takes place on *Scoresheet* number two as students continue to work problems which tie into the tournament action.

**Evaluation:** Students complete *Scoresheet* number three after the audio has finished playing. Their work on this page will give you an indication of how well they have understood the concepts taught in the lesson.

SPORTS MATH

LESSON 7  
 SCORESHEET NO. 1


**TEE TIMES**



1. A  $\begin{array}{r} 18 \\ \times 4 \\ \hline \end{array}$  B  $\begin{array}{r} 18 \\ \times 4 \\ \hline 32 \end{array}$

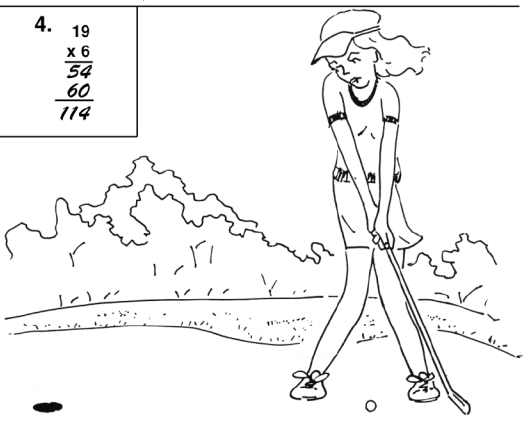
C  $\begin{array}{r} 18 \\ \times 4 \\ \hline 32 \\ 40 \end{array}$  D  $\begin{array}{r} 18 \\ \times 4 \\ \hline 32 \\ 40 \\ \hline 72 \end{array}$

2.  $\begin{array}{r} 23 \\ \times 5 \\ \hline 15 \\ 100 \\ \hline 115 \end{array}$

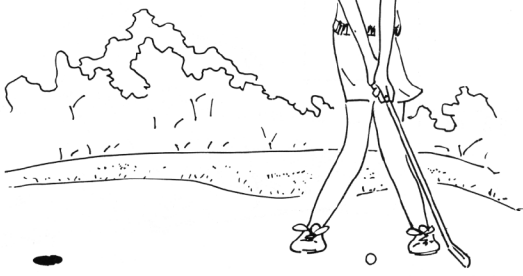


3.  $\begin{array}{r} 46 \\ \times 6 \\ \hline 36 \\ 240 \\ \hline 276 \end{array}$

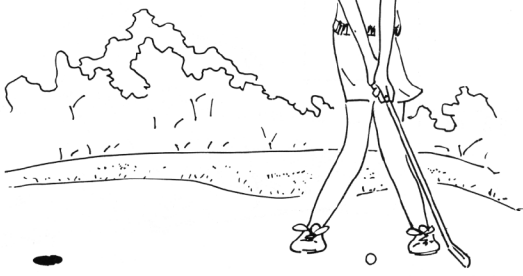
4.  $\begin{array}{r} 19 \\ \times 6 \\ \hline 54 \\ 60 \\ \hline 114 \end{array}$



5.  $\begin{array}{r} 37 \\ \times 8 \\ \hline 56 \\ 240 \\ \hline 296 \end{array}$



6.  $\begin{array}{r} 54 \\ \times 9 \\ \hline 36 \\ 450 \\ \hline 486 \end{array}$

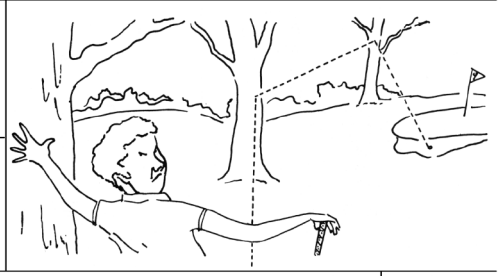


SPORTS MATH


LESSON 7  
 SCORESHEET NO. 2

**TEE TIMES**

7.  $\begin{array}{r} 56 \\ \times 2 \\ \hline 12 \\ 100 \\ \hline 112 \end{array}$

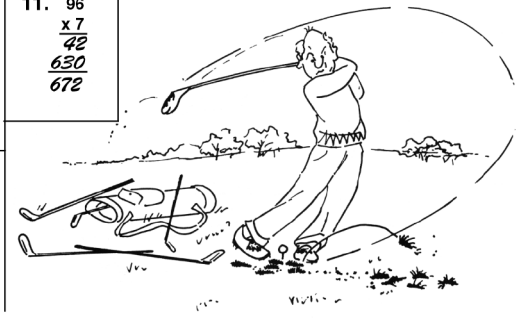


8.  $\begin{array}{r} 83 \\ \times 5 \\ \hline 15 \\ 400 \\ \hline 415 \end{array}$

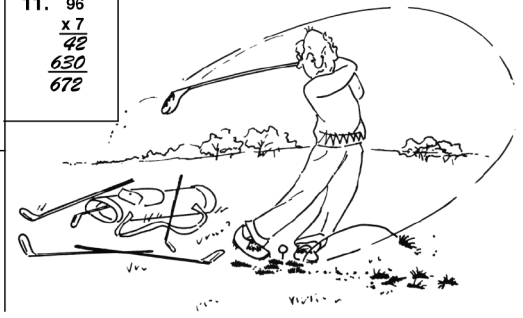


10.  $\begin{array}{r} 53 \\ \times 9 \\ \hline 27 \\ 450 \\ \hline 477 \end{array}$

11.  $\begin{array}{r} 96 \\ \times 7 \\ \hline 42 \\ 630 \\ \hline 672 \end{array}$



12.  $\begin{array}{r} 64 \\ \times 8 \\ \hline 32 \\ 480 \\ \hline 512 \end{array}$

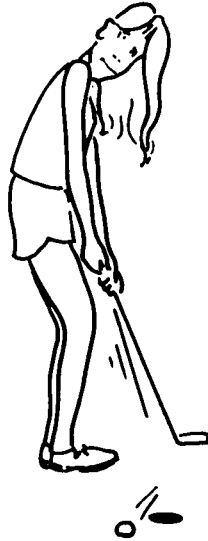


# SPORTS MATH

LESSON 7  
SCORESHEET NO. 3

## TEE TIMES

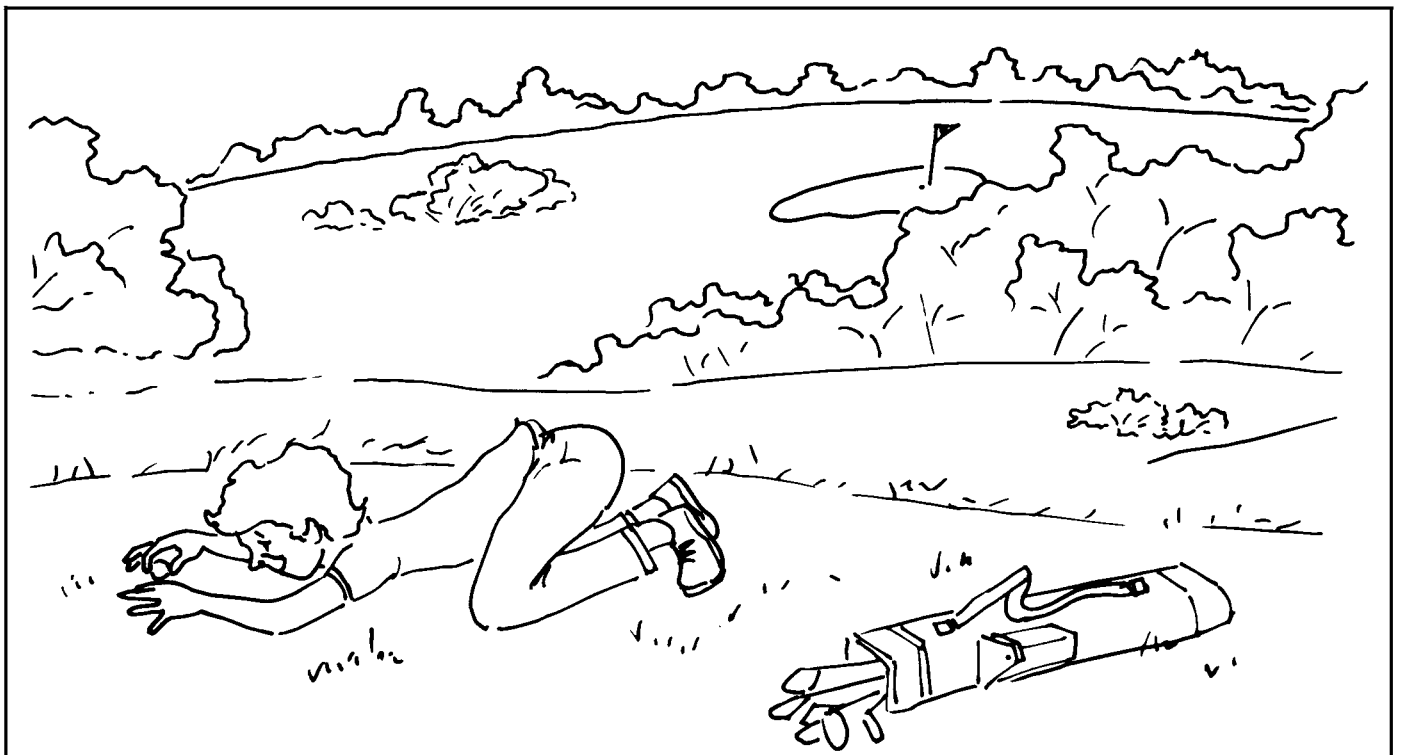
$$\begin{array}{r}
 13. \quad 69 \\
 \times 3 \\
 \hline
 27 \\
 180 \\
 \hline
 207
 \end{array}$$



$$\begin{array}{r}
 14. \quad 79 \\
 \times 4 \\
 \hline
 36 \\
 280 \\
 \hline
 316
 \end{array}$$

$$\begin{array}{r}
 15. \quad 85 \\
 \times 6 \\
 \hline
 30 \\
 480 \\
 \hline
 510
 \end{array}$$

$$\begin{array}{r}
 16. \quad 94 \\
 \times 8 \\
 \hline
 32 \\
 720 \\
 \hline
 752
 \end{array}$$



$$\begin{array}{r}
 17. \quad 58 \\
 \times 5 \\
 \hline
 40 \\
 250 \\
 \hline
 290
 \end{array}$$

$$\begin{array}{r}
 18. \quad 38 \\
 \times 7 \\
 \hline
 56 \\
 210 \\
 \hline
 266
 \end{array}$$

$$\begin{array}{r}
 19. \quad 67 \\
 \times 9 \\
 \hline
 63 \\
 540 \\
 \hline
 603
 \end{array}$$

# Lesson 8: Icing the Times

## Objectives

1. to provide practice in working with the distributive property of multiplication and with multiples of 10
2. to provide practice in multiplying a two-digit numeral by a two-digit numeral with emphasis on place value

## In the Lesson

The multiplication problems in this lesson are set squarely in the middle of an action-packed hockey game between the Philadelphia Buyers and the Toronto Makebelieves.

*Scoresheet* number one begins with an example of the long method of multiplication in which all the partial products are written down and added. The narrator provides a detailed explanation of this method, and students use the example as a guide in working four more problems on the page. (The answer to the example is the total number of minutes one player has been penalized in his last 27 games.) Students are reminded that multiplying any number by 10 is accomplished by simply writing a zero in the number.


The hockey action continues, with the two announcers who have been providing the play-by-play commentary discussing some game statistics. These statistics are represented in the problems on *Scoresheet* number two. Students work these problems using the long method of multiplication.

**Evaluation:** *Scoresheet* number three is completed by the students after the audio has finished playing. Their performance on this page will give you an indication of their understanding of the concepts taught in the lesson.

SPORTS MATH

LESSON 8  
 SCORESHEET NO. 1

**ICING THE TIMES**




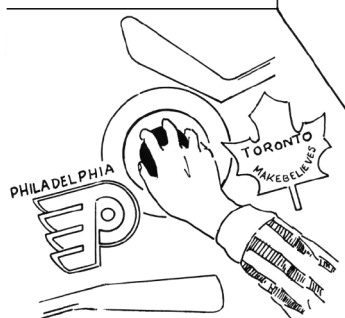
1. A  $\begin{array}{r} 18 \\ \times 27 \\ \hline \end{array}$  B  $\begin{array}{r} 18 \\ \times 27 \\ \hline 56 \end{array}$

C  $\begin{array}{r} 18 \\ \times 27 \\ \hline 56 \\ 70 \end{array}$  D  $\begin{array}{r} 18 \\ \times 27 \\ \hline 56 \\ 70 \\ 160 \end{array}$  E  $\begin{array}{r} 18 \\ \times 27 \\ \hline 56 \\ 70 \\ 160 \\ \hline 200 \end{array}$

2.  $\begin{array}{r} 46 \\ \times 23 \\ \hline 18 \\ 120 \\ \hline 300 \\ 1058 \end{array}$

3.  $\begin{array}{r} 57 \\ \times 36 \\ \hline 42 \\ 300 \\ 210 \\ 1500 \\ \hline 2052 \end{array}$





4.  $\begin{array}{r} 24 \\ \times 28 \\ \hline 32 \\ 160 \\ 80 \\ 400 \\ \hline 672 \end{array}$

5.  $\begin{array}{r} 31 \\ \times 42 \\ \hline 2 \\ 60 \\ 40 \\ 1200 \\ \hline 1302 \end{array}$

SPORTS MATH



LESSON 8  
 SCORESHEET NO. 2


**ICING THE TIMES**

6.  $\begin{array}{r} 84 \\ \times 37 \\ \hline 28 \\ 560 \\ 120 \\ \hline 2400 \\ 3108 \end{array}$

7.  $\begin{array}{r} 97 \\ \times 43 \\ \hline 21 \\ 270 \\ 280 \\ 3600 \\ \hline 4171 \end{array}$

8.  $\begin{array}{r} 63 \\ \times 45 \\ \hline 15 \\ 300 \\ 120 \\ 2400 \\ \hline 2835 \end{array}$



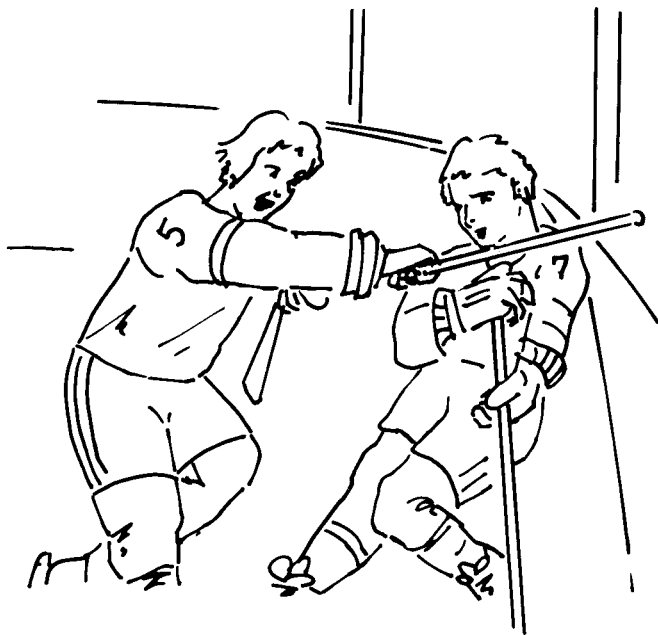
9.  $\begin{array}{r} 60 \\ \times 52 \\ \hline 0 \\ 120 \\ 0 \\ 3000 \\ \hline 3120 \end{array}$

10.  $\begin{array}{r} 52 \\ \times 28 \\ \hline 16 \\ 400 \\ 0 \\ 1000 \\ \hline 1456 \end{array}$

# SPORTS MATH

LESSON 8  
SCORESHEET NO. 3

## ICING THE TIMES



11.

$$\begin{array}{r} 57 \\ \times 68 \\ \hline 56 \\ 400 \\ 420 \\ \hline 3000 \\ 3876 \end{array}$$

12.

$$\begin{array}{r} 85 \\ \times 79 \\ \hline 45 \\ 720 \\ 350 \\ \hline 5600 \\ 6715 \end{array}$$

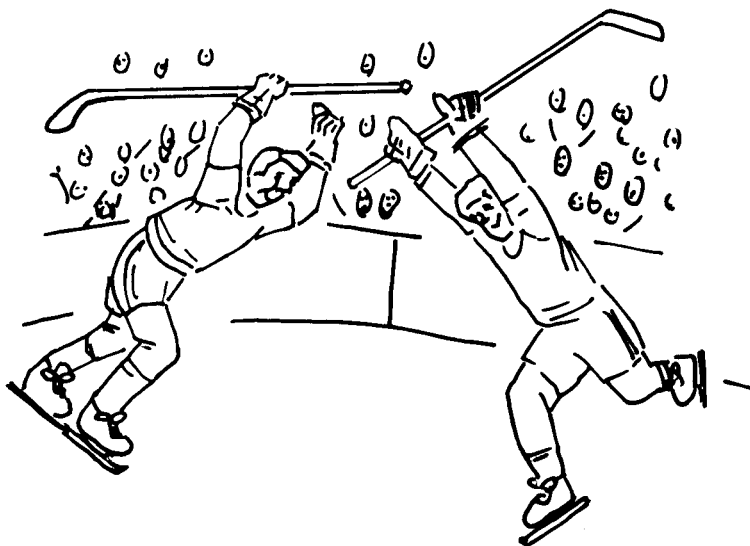


13.

$$\begin{array}{r} 64 \\ \times 39 \\ \hline 36 \\ 540 \\ 120 \\ \hline 1800 \\ 2496 \end{array}$$

14.

$$\begin{array}{r} 42 \\ \times 98 \\ \hline 16 \\ 320 \\ 180 \\ \hline 3600 \\ 4116 \end{array}$$



15.

$$\begin{array}{r} 70 \\ \times 61 \\ \hline 0 \\ 70 \\ 0 \\ \hline 4200 \\ 4270 \end{array}$$

16.

$$\begin{array}{r} 90 \\ \times 84 \\ \hline 0 \\ 360 \\ 0 \\ \hline 7200 \\ 7560 \end{array}$$

## Lesson 9: Times on the Goal Line

### Objectives

1. to provide further practice in multiplying two-digit multiplicands by one- and two-digit multipliers
2. to introduce the short method of multiplication

### In the Lesson

Football is the sport spotlighted in this final lesson on multiplication. Building on what the students have learned in the three preceding lessons, the narrator and sports announcers "team up" to present a short method of multiplying.

The lesson opens with an exciting play-by-play account of the kicker for one of the teams making a key play. A play-action commentary then provides the lead-in for the work presented in the first problem of *Scoresheet* number one. The problem is an example of the step-by-step process used in short-form multiplication, with students learning that part of the computation is done in their heads. As the game continues, students are guided in working the multiplication problems on the rest of *Scoresheet* number one. All page 1 problems involve short-form multiplication of two-digit multiplicands by one-digit multipliers.


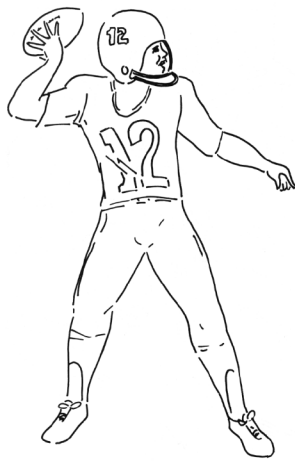
On *Scoresheet* number two, students work with multiplication of two-digit factors using the short method. The first problem gives a detailed example of the steps to be followed in working the problems on the page, with the narrator providing an explanation of each step. Students then complete the page, finding out how much money was spent during one season on lost footballs, torn jerseys, torn pants, and ruined helmets.

**Evaluation:** The work on *Scoresheet* number three is completed after the audio has finished playing. The students' work on this page will provide an informal evaluation of their understanding of short-form multiplication.

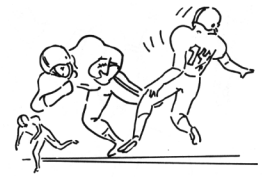
SPORTS MATH

LESSON 9  
 SCORESHEET NO. 1

TIMES ON THE GOAL LINE

1. A  $\begin{array}{r} 24 \\ \times 3 \\ \hline \end{array}$  B  $\begin{array}{r} 24 \\ \times 3 \\ \hline 2 \end{array}$  C  $\begin{array}{r} 24 \\ \times 3 \\ \hline 72 \end{array}$



2.  $\begin{array}{r} 14 \\ \times 6 \\ \hline 84 \end{array}$  3.  $\begin{array}{r} 63 \\ \times 7 \\ \hline 441 \end{array}$



4.  $\begin{array}{r} 56 \\ \times 6 \\ \hline 336 \end{array}$  5.  $\begin{array}{r} 67 \\ \times 8 \\ \hline 536 \end{array}$

6.  $\begin{array}{r} 72 \\ \times 7 \\ \hline 504 \end{array}$  7.  $\begin{array}{r} 84 \\ \times 9 \\ \hline 756 \end{array}$

SPORTS MATH

LESSON 9  
 SCORESHEET NO. 2

TIMES ON THE GOAL LINE

8. A  $\begin{array}{r} 43 \\ \times 28 \\ \hline 4 \end{array}$  B  $\begin{array}{r} 43 \\ \times 28 \\ \hline 344 \end{array}$  C  $\begin{array}{r} 43 \\ \times 28 \\ \hline 344 \\ 0 \end{array}$

D  $\begin{array}{r} 43 \\ \times 28 \\ \hline 344 \\ 60 \end{array}$  E  $\begin{array}{r} 43 \\ \times 28 \\ \hline 344 \\ 860 \end{array}$  F  $\begin{array}{r} 43 \\ \times 28 \\ \hline 344 \\ 860 \\ \hline 1204 \end{array}$

9.  $\begin{array}{r} 92 \\ \times 45 \\ \hline 460 \\ 3680 \\ \hline 4140 \end{array}$

"Torn Jerseys"

11.  $\begin{array}{r} 89 \\ \times 78 \\ \hline 712 \\ 6230 \\ \hline 6942 \end{array}$

"Torn Pants"

10.  $\begin{array}{r} 36 \\ \times 67 \\ \hline 252 \\ 2160 \\ \hline 2412 \end{array}$

"Ruined Helmets"

12.  $\begin{array}{r} 53 \\ \times 24 \\ \hline 212 \\ 1060 \\ \hline 1272 \end{array}$

# SPORTS MATH

## LESSON 9 SCORESHEET NO. 3

### TIMES ON THE GOAL LINE

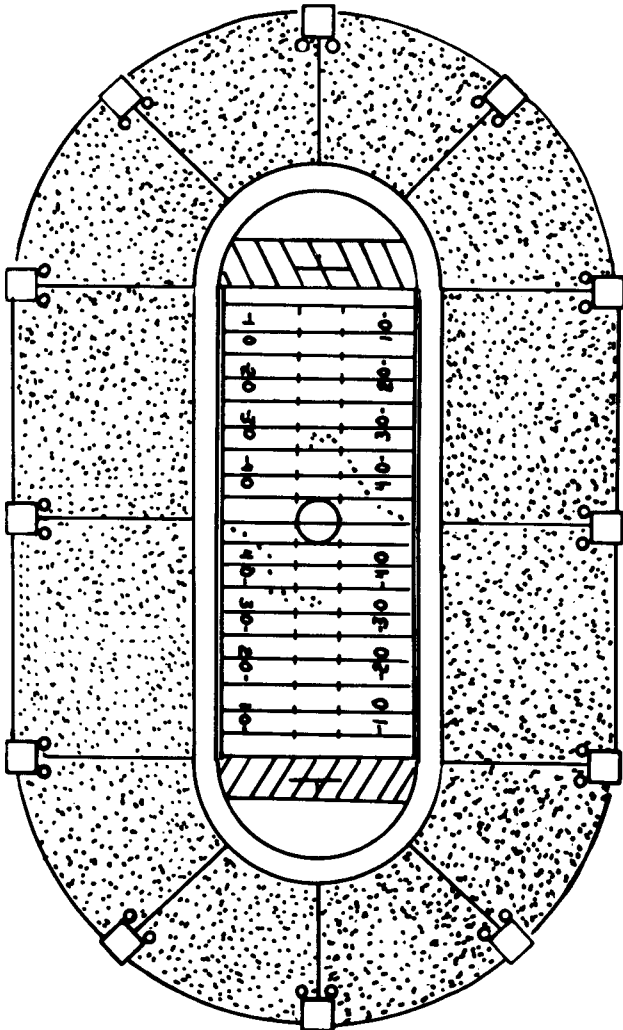
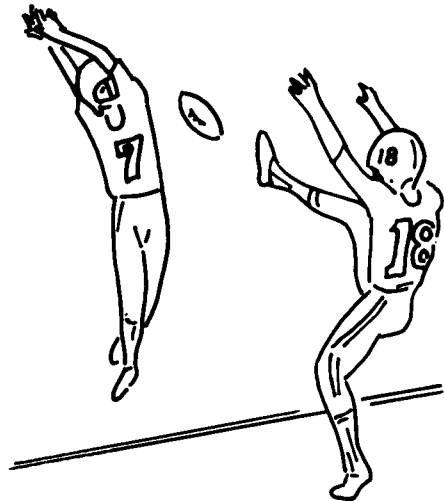


13. 
$$\begin{array}{r} 87 \\ \times 6 \\ \hline 522 \end{array}$$

14. 
$$\begin{array}{r} 94 \\ \times 8 \\ \hline 752 \end{array}$$

15. 
$$\begin{array}{r} 65 \\ \times 7 \\ \hline 455 \end{array}$$

16. 
$$\begin{array}{r} 263 \\ \times 18 \\ \hline 504 \\ 630 \\ \hline 1134 \end{array}$$



17. 
$$\begin{array}{r} 48 \\ \times 26 \\ \hline 288 \\ 960 \\ \hline 1248 \end{array}$$

18. 
$$\begin{array}{r} 59 \\ \times 37 \\ \hline 413 \\ 1770 \\ \hline 2183 \end{array}$$

19. 
$$\begin{array}{r} 76 \\ \times 58 \\ \hline 608 \\ 3800 \\ \hline 4408 \end{array}$$

20. 
$$\begin{array}{r} 98 \\ \times 78 \\ \hline 784 \\ 6860 \\ \hline 7644 \end{array}$$

# Lesson 10: High Dive Division

## Objectives

1. to develop an understanding of division as repeated subtraction of the same number
2. to provide practice in dividing three-and four-place dividends by one-place divisors, using a simple ladder method

## In the Lesson

Aquatic sports are featured in this lesson which ties division problems to sports action.

As the lesson opens, the National Championship Pool Contest is in progress, and Trudy Jones, one of the best female divers in the country, steps up to the platform. The two sports announcers for the lesson point out that Trudy has received a total of 36 points in her last four dives. They wonder how many points she has received for each dive, and this question is stated in mathematical terms in problem 1 on *Scoresheet* number one. Students follow along as the narrator uses the problem to demonstrate division as the opposite of multiplication and to show how division may be viewed as repeated subtraction of the same number. The problem is used to demonstrate the ladder method of division. This method involves subtracting groups of divisors in sets of 10 and 5 until the dividend is used up. Students then complete the problems on the page using the ladder method.

The problems on *Scoresheet* number two revolve around the platform diving competition. Guided by the narrator, students learn an even shorter version of the ladder method: the removal of all ten-groups of divisors in one operation. They apply this skill to the remainder of the problems presented on the page.

**Evaluation:** *Scoresheet* number three is completed after the audio has finished playing. The students' work on this page will provide you with an informal evaluation of their understanding of the concepts taught in the lesson.

SPORTS MATH

LESSON 10  
SCORESHEET NO. 1

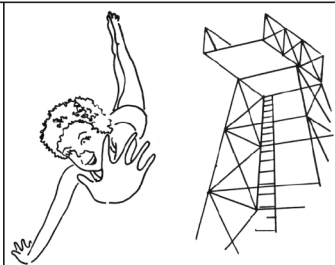
**HIGH DIVE DIVISION**

1. A  $36 \div 4 = \square$

B  $4 \times \square = 36$

C 
$$\begin{array}{r} 4 \overline{) 36} \\ -4 \\ \hline 32 \\ -4 \\ \hline 28 \\ -4 \\ \hline 24 \\ -4 \\ \hline 20 \\ -4 \\ \hline 16 \\ -4 \\ \hline 12 \\ -4 \\ \hline 8 \\ -4 \\ \hline 4 \\ -4 \\ \hline 0 \end{array}$$

D 
$$\begin{array}{r} 4 \overline{) 36} \\ -20 \quad 5 \\ \hline 16 \\ -8 \quad 2 \\ \hline 8 \\ -8 \quad 2 \\ \hline 0 \end{array}$$

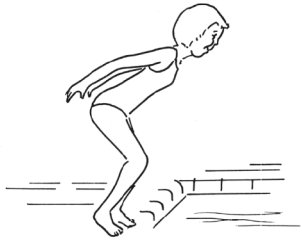


2. 
$$\begin{array}{r} 6 \overline{) 156} \\ -60 \quad 10 \\ \hline 96 \\ -60 \quad 10 \\ \hline 36 \\ -36 \quad 6 \\ \hline 0 \end{array}$$

3. 
$$\begin{array}{r} 7 \overline{) 238} \\ -70 \quad 10 \\ \hline 168 \\ -70 \quad 10 \\ \hline 98 \\ -70 \quad 10 \\ \hline 28 \\ 28 \quad 4 \\ \hline 0 \end{array}$$

4. 
$$\begin{array}{r} 8 \overline{) 360} \\ -80 \quad 10 \\ \hline 280 \\ -80 \quad 10 \\ \hline 200 \\ -80 \quad 10 \\ \hline 120 \\ -80 \quad 10 \\ \hline 40 \\ -40 \quad 5 \\ \hline 0 \end{array}$$

5. 
$$\begin{array}{r} 9 \overline{) 423} \\ -90 \quad 10 \\ \hline 333 \\ -90 \quad 10 \\ \hline 243 \\ -90 \quad 10 \\ \hline 153 \\ -90 \quad 10 \\ \hline 63 \\ -63 \quad 7 \\ \hline 0 \end{array}$$




SPORTS MATH


LESSON 10  
SCORESHEET NO. 2

**HIGH DIVE DIVISION**

6. 
$$\begin{array}{r} 8 \overline{) 192} \\ -160 \quad 20 \\ \hline 32 \\ -32 \quad 4 \\ \hline 0 \end{array}$$



7. 
$$\begin{array}{r} 7 \overline{) 315} \\ -280 \quad 40 \\ \hline 35 \\ -35 \quad 5 \\ \hline 0 \end{array}$$



8. 
$$\begin{array}{r} 6 \overline{) 396} \\ -360 \quad 60 \\ \hline 36 \\ -36 \quad 6 \\ \hline 0 \end{array}$$

\$6 Seats

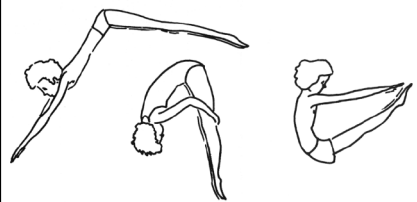
9. 
$$\begin{array}{r} 8 \overline{) 982} \\ -800 \quad 100 \\ \hline 182 \\ -160 \quad 20 \\ \hline 32 \\ -32 \quad 4 \\ \hline 0 \end{array}$$

\$8 Seats

Figuring Space

10. 
$$\begin{array}{r} 7 \overline{) 1645} \\ -1400 \quad 200 \\ \hline 245 \\ -210 \quad 30 \\ \hline 35 \\ -35 \quad 5 \\ \hline 0 \end{array}$$

\$7 Seats



22

# SPORTS MATH

## LESSON 10 SCORESHEET NO. 3

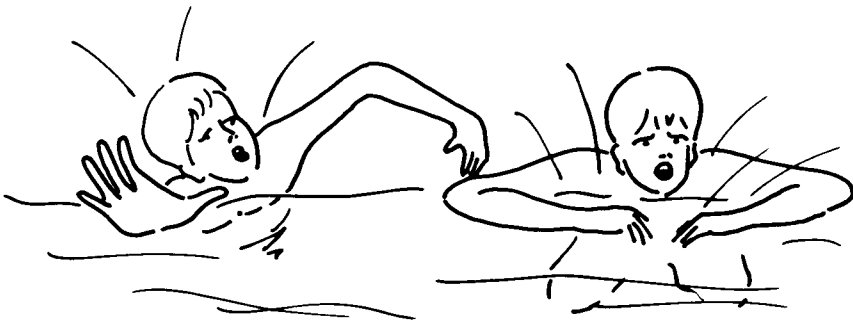
### HIGH DIVE DIVISION

11.

$$\begin{array}{r|l}
 216 & \\
 5 \overline{) 1080} & \\
 \underline{-1000} & 200 \\
 80 & \\
 \underline{-50} & 10 \\
 30 & \\
 \underline{-30} & 6 \\
 0 & 
 \end{array}$$

12.

$$\begin{array}{r|l}
 62 & \\
 7 \overline{) 434} & \\
 \underline{-420} & 60 \\
 14 & \\
 \underline{-14} & 2 \\
 0 & 
 \end{array}$$

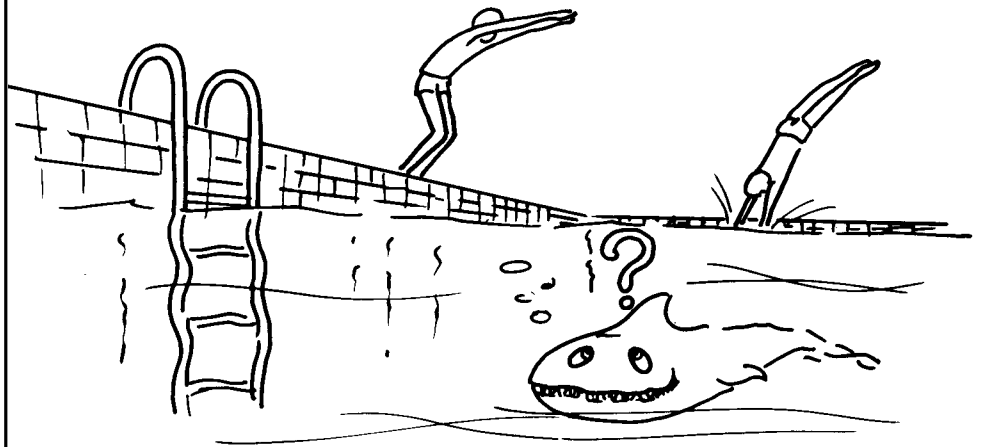


13.

$$\begin{array}{r|l}
 174 & \\
 6 \overline{) 1044} & \\
 \underline{-600} & 100 \\
 444 & \\
 \underline{-420} & 70 \\
 24 & \\
 \underline{-24} & 4 \\
 0 & 
 \end{array}$$

14.

$$\begin{array}{r|l}
 672 & \\
 8 \overline{) 5376} & \\
 \underline{-4800} & 600 \\
 576 & \\
 \underline{-560} & 70 \\
 16 & \\
 \underline{-16} & 2 \\
 0 & 
 \end{array}$$



# Lesson 11: Division of Offense

## Objectives

1. to provide practice in estimating quotients
2. to refine the ladder method of division with two-digit divisors and four- and five-place dividends.


## In the Lesson

Girls' basketball provides the motivation for the division problems in this lesson.

The lesson opens with an exciting shot by one of the key players, followed by some information about the player's scoring record. Students are directed to find out how many points per game she is averaging. They do this by working the first problem on *Scoresheet* number one. Guided by the narrator, they estimate the quotient, then do the actual computation using the ladder method learned in lesson 10 of the program. This is followed by three more problems which deal with three different girls' career statistics. Students do the division required using the ladder method.


The announcers then report on the progress of the game and give some interesting statistics on some of the players. Students use the ladder method to work the division problems on *Scoresheet* number two. To do the work, they must subtract divisors in sets of 100 and sets of 10.

**Evaluation:** Students complete *Scoresheet* number three after the audio has finished playing. Their performance on this page will give you an indication of how well they have understood the skills taught in the lesson.

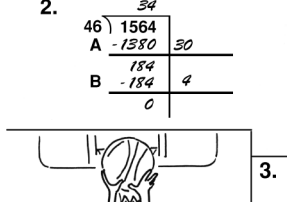


LESSON 11  
SCORESHEET NO. 1

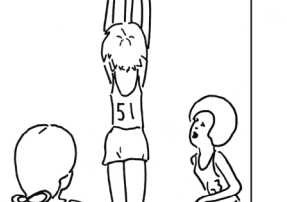
**DIVISION OF OFFENSE**

1. 

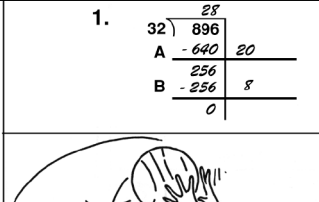
$$\begin{array}{r} 28 \\ 32 \overline{) 896} \\ \underline{-640} \phantom{0} \\ 256 \\ \underline{-256} \\ 0 \end{array}$$

2. 


$$\begin{array}{r} 34 \\ 46 \overline{) 1564} \\ \underline{-1380} \phantom{0} \\ 184 \\ \underline{-184} \\ 0 \end{array}$$

3. 

$$\begin{array}{r} 23 \\ 51 \overline{) 1173} \\ \underline{-1020} \phantom{0} \\ 153 \\ \underline{-153} \\ 0 \end{array}$$

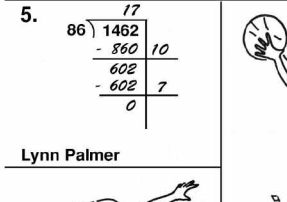
4. 

$$\begin{array}{r} 22 \\ 63 \overline{) 1386} \\ \underline{-1260} \phantom{0} \\ 126 \\ \underline{-126} \\ 0 \end{array}$$



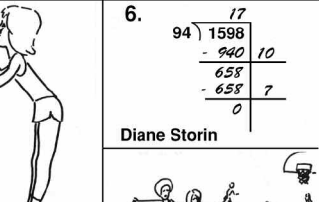
LESSON 11  
SCORESHEET NO. 2

**DIVISION OF OFFENSE**

5. 

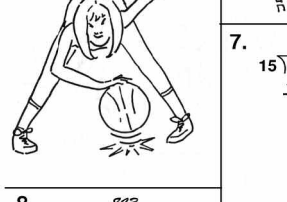
$$\begin{array}{r} 17 \\ 86 \overline{) 1462} \\ \underline{-860} \phantom{0} \\ 602 \\ \underline{-602} \\ 0 \end{array}$$

Lynn Palmer


6. 

$$\begin{array}{r} 17 \\ 94 \overline{) 1598} \\ \underline{-940} \phantom{0} \\ 658 \\ \underline{-658} \\ 0 \end{array}$$

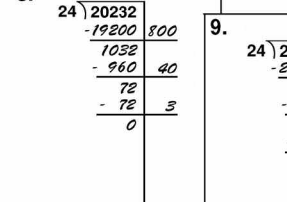
Diane Storin

7. 


$$\begin{array}{r} 112 \\ 15 \overline{) 1680} \\ \underline{-1500} \phantom{00} \\ 180 \\ \underline{-150} \phantom{0} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

8. 

$$\begin{array}{r} 843 \\ 24 \overline{) 20232} \\ \underline{-19200} \phantom{00} \\ 1032 \\ \underline{-960} \phantom{00} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$

9. 

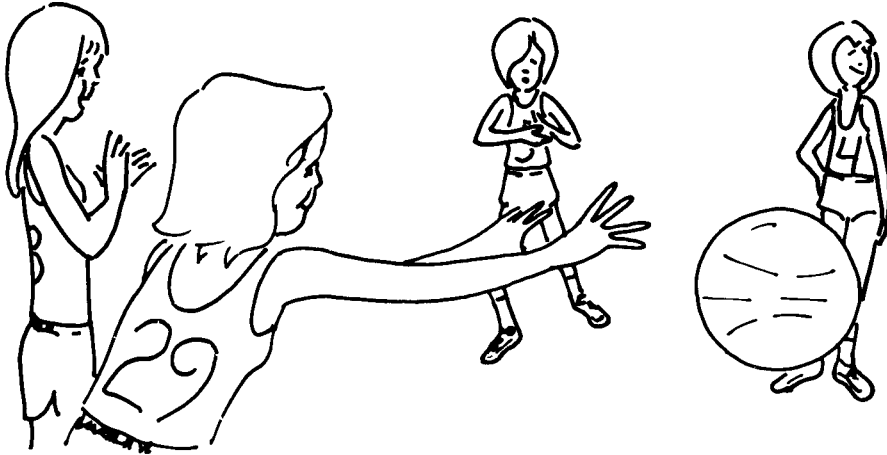
$$\begin{array}{r} 957 \\ 24 \overline{) 22968} \\ \underline{-21600} \phantom{00} \\ 1368 \\ \underline{-1200} \phantom{00} \\ 168 \\ \underline{-168} \\ 0 \end{array}$$



# SPORTS MATH

## LESSON 11 SCORESHEET NO. 3

### DIVISION OF OFFENSE



10.

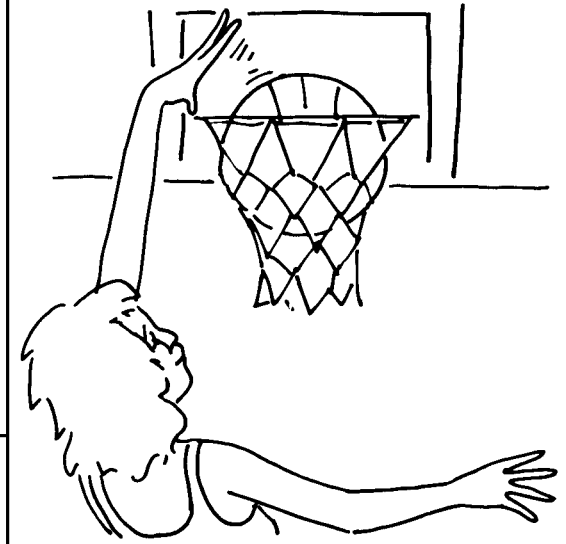
	146 R2	
29	4236	
	-2900	100
	1336	
	-1160	40
	176	
	-174	6
	2	

11.

	213 R7	
48	10231	
	-9600	200
	631	
	-480	10
	151	
	-144	3
	7	

12.

	568 R28	
63	35812	
	-31500	500
	4312	
	-3780	60
	532	
	-504	8
	28	



13.

	104 R67	
68	7139	
	-6800	100
	339	
	-272	4
	67	



14.

	1158 R28	
74	85720	
	-74000	1000
	11720	
	-7400	100
	4320	
	-3700	50
	620	
	-592	8
	28	

# Lesson 12: Division Contenders

## Objectives

1. to introduce traditional long division, with emphasis on place-value concepts
2. to provide practice in using traditional long division of four- and five-place dividends by two-place divisors

## In the lesson

A baseball sailing over the wall in left center and a roaring crowd set the sports action stage for learning traditional long division. The announcers for the game cite the "homer" as the 2,736th hit of Al Keyline's 18-year career in baseball. They wonder how many hits per year he has averaged and this provides the basis for the first problem on *Scoresheet* number one. Students follow along as the narrator uses the problem to give a step-by-step explanation of traditional long division. After this explanation, students complete the page by figuring the career hit records of three more players. All the work on the page requires the use of traditional long division.

*Scoresheet* number two provides additional practice in using long division. All problems tie in with the action at the ball park or with individual players' career statistics.

**Evaluation:** The work on *Scoresheet* number three is completed by students after the audio has finished playing. Their performance on this page will give you an indication of how well they have understood the math concepts taught in lesson 12.

SPORTS MATH

LESSON 12  
 SCORESHEET NO. 1

**DIVISION CONTENDERS**

1. A  $18 \overline{) 2736}$       B  $18 \overline{) 2736}$       C  $18 \overline{) 2736}$

$$\begin{array}{r} 150 \\ 1800 \\ \hline 936 \end{array}$$

D  $18 \overline{) 2736}$       E  $18 \overline{) 2736}$       F  $18 \overline{) 2736}$

$$\begin{array}{r} 15 \\ 1800 \\ 936 \\ \hline 900 \end{array}$$

G  $18 \overline{) 2736}$       H  $18 \overline{) 2736}$       I  $18 \overline{) 2736}$

$$\begin{array}{r} 152 \\ 1800 \\ 936 \\ \hline 900 \end{array}$$

2.  $21 \overline{) 3864}$

$$\begin{array}{r} 184 \\ -2100 \\ \hline 1764 \\ -1680 \\ \hline 84 \\ -84 \\ \hline 0 \end{array}$$

3.  $22 \overline{) 5412}$

$$\begin{array}{r} 246 \\ -4400 \\ \hline 1012 \\ -880 \\ \hline 132 \\ -132 \\ \hline 0 \end{array}$$

Iron Lou

4.  $16 \overline{) 3568}$

$$\begin{array}{r} 223 \\ -3200 \\ \hline 368 \\ -320 \\ \hline 48 \\ -48 \\ \hline 0 \end{array}$$

Ruth

SPORTS MATH

LESSON 12  
 SCORESHEET NO. 2

**DIVISION CONTENDERS**

5.  $19 \overline{) 3743}$

$$\begin{array}{r} 197 \\ -1900 \\ \hline 1843 \\ -1710 \\ \hline 133 \\ -133 \\ \hline 0 \end{array}$$

5.  $34 \overline{) 5542}$

$$\begin{array}{r} 163 \\ -3400 \\ \hline 2142 \\ -2040 \\ \hline 102 \\ -102 \\ \hline 0 \end{array}$$

7.  $14 \overline{) 1988}$

$$\begin{array}{r} 142 \\ -1400 \\ \hline 88 \\ -84 \\ \hline 48 \\ -48 \\ \hline 0 \end{array}$$

8.  $34 \overline{) 21488}$

$$\begin{array}{r} 632 \\ -20400 \\ \hline 1088 \\ -1020 \\ \hline 68 \\ -68 \\ \hline 0 \end{array}$$

Hot dogs this year.

9.  $56 \overline{) 46424}$

$$\begin{array}{r} 829 \\ -44800 \\ \hline 1624 \\ -1120 \\ \hline 504 \\ -504 \\ \hline 0 \end{array}$$

Hot dogs last year.

# SPORTS MATH

LESSON 12  
SCORESHEET NO. 3

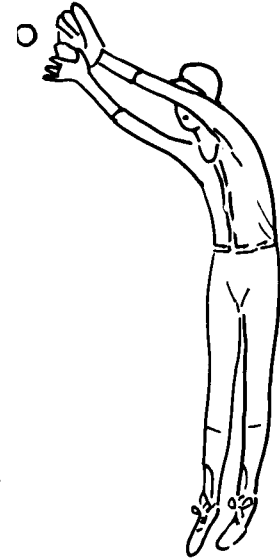
## DIVISION CONTENDERS

10.

$$\begin{array}{r} 89 \\ 67 \overline{) 5963} \\ \underline{- 5360} \\ 603 \\ \underline{- 603} \\ 0 \end{array}$$

11.

$$\begin{array}{r} 84 \\ 90 \overline{) 8064} \\ \underline{- 7680} \\ 384 \\ \underline{- 384} \\ 0 \end{array}$$



12.

$$\begin{array}{r} 345 \\ 48 \overline{) 16560} \\ \underline{- 14400} \\ 2160 \\ \underline{- 1920} \\ 240 \\ \underline{- 240} \\ 0 \end{array}$$

13.

$$\begin{array}{r} 689 \text{ R } 12 \\ 72 \overline{) 49620} \\ \underline{- 43200} \\ 6420 \\ \underline{- 5760} \\ 660 \\ \underline{- 648} \\ 12 \end{array}$$

14.

$$\begin{array}{r} 1178 \text{ R } 47 \\ 53 \overline{) 62481} \\ \underline{- 53000} \\ 9481 \\ \underline{- 5300} \\ 4181 \\ \underline{- 3710} \\ 471 \\ \underline{- 424} \\ 47 \end{array}$$

