Football Scores: Addition and Multiplication

Name _____

Date _____

Football Scores

🎯 **Focus: Find combinations of point values.**

The Problem: How could the game score be 77 to 4?

The football team from Horace B. Smedley School won the game 77 to 4. How is this possible? Your team needs to show the different ways a team could score 77 points in a football game.

Action	Points
Touchdown	6
Extra Point (only after a touchdown)	1
Two point conversion (only after a touchdown)	2
Field goal	3
Safety	2

The Task

1. Your team will create a poster showing the ways the [Smedley School] team could have earned 77 points.

2. Each person on the team will write an explanation of the team's solution. This explanation will answer these questions:

   • *How did your team decide on the ways the team could have earned 77 points? Do you think you found all of the ways? Why do you think so?*

- *What did your team put on its poster? Were there other ways the information could have been displayed? Which way did you like the best? Why?*

- *Do you think it is realistic for a team to earn so many points? Why do you think so?*

Things to Consider

Understanding the Problem

Read the *Football Scores* problem page, and then answer these questions.

- *What are all of the possible ways a team can score in a football game?*

- *What are the point values for each of these ways?*

- *What combinations of point values are actually possible?*

- *Can a team score an extra point without making a touchdown first?*

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Making a Plan

Before you make your plan, answer these questions.

- *What is the highest point value a team can earn? Could the team have reached 77 points with just that point value?*

- *What are the other point values? Could a team reach 77 points with any one of those point values alone?*

- *Is it realistic that a team would make all their points using only one point value?*

- *What combination of point values could be used to reach 77 points?*

Carrying Out the Plan

Before you begin planning your presentation, answer these questions.

- *What does your presentation have to include? Do you have all of the necessary information? What other calculations do you need to make?*

- *What information needs to be displayed? How will you display your information? What other ways could you show the information?*

Evaluating the Solution

- *Did you answer the question?*

- *How do you know?*

- *Does your answer make sense?*

- *Did all of your combinations total 77 points?*

- *Did your combinations follow the rules of football?*

- *Did everyone in the group write an explanation?*

- *Did you notice any patterns?*

- *How did the patterns help you?*

- *How did you know when you had found all of the ways to earn 77 points?*

Modified from Football Scores, from A World of Mathematics: Activities for Grades 4, 5, 6 using the TI-15

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Using the Calculator

Use the TI-15 to perform addition and multiplication.

Addition and multiplication: Using parentheses

Consider this problem:

1 Michelle bought school supplies. She bought 5 notebooks at 29 cents each, 6 packages of paper at 58 cents each, and 3 packages of pens at 79 cents each. How much money did she spend?

Press	The display shows:
⚬ 29 ⊞ ⚬ 29 ⊞ ⚬ 29 ⊞ ⚬ 29 ⊞ ⚬ 29 ⊞ ⚬ 58 ⊞ ⚬ 58 ⊞ ⚬ 58 ⊞ ⚬ 58 ⊞ ⚬ 58 ⊞ ⚬ 58 ⊞ ⚬ 79 ⊞ ⚬ 79 ⊞ ⚬ 79 Enter	

Using parentheses can keep all of the calculations in order and simplify the number of keystrokes used.

Now try this:

Press	The display shows:
(⚬ 29 × 5) ⊞ (⚬ 58 × 6) ⊞ (⚬ 79 × 3) Enter	

Was it the same as the first one? Why do you suppose that happened?

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2 Roberto was helping his mother at the garage sale. His mother told him he could keep the money from all of the items he sold. Roberto sold 13 items at 5 cents each, 21 items at 10 cents each, and 9 items at 15 cents each. How much money did he get to keep?

Press	The display shows:
(13 × . 05) + (21 × . 10) + (9 × . 15) Enter	

3 Hildegarde went to the school book fair. She bought 23 books. She bought 9 books at 25 cents each, 10 books at 75 cents each, and 4 books at $1.29 each. How much did Hildegarde spend?

Write the keystrokes you will use to solve this problem.

Use a different set of keystrokes to solve the problem. Did you get the same answer? Why do you suppose that happened?

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