

# Making the Grade

Name \_\_\_\_\_

Problem 1:

On a math test, Joe received 88 points out of a possible 100 points. What percent of the test did Joe get correct? \_\_\_\_\_

Would you need a calculator to figure out the percent? \_\_\_\_\_ Why or why not?

Mrs. Figures' math tests do not always total 100 points. However, she always reports her students' scores as percents. Mrs. Figures figures out the percents for the test using a calculator. If a test has 40 questions and a student gets 28 questions correct, Mrs. Figures presses:

$$28 \div 40 \%$$

The calculator displays the percent, 70.

Use your calculator to figure out the percent scores on the following tests.

Name of Student	No. of questions on the test	No. of questions correct	Percent correct
2. Spencer	40	32	
3. Francisco	40	24	
4. Jennifer	40	16	
5. Samir	40	35	
6. Elizabeth	40	39	
7. Tasha	20	16	
8. Hakeem	52	39	
9. Michicko	52	48	

## Thinking Cap

A school's scoring scale is:

90% - 100% A; 80% - 89% B; 70% - 79% C; 60% - 69% D; below 60% F

If a test has 48 questions, how many questions must a student get correct to score at least a B?

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## TEACHER NOTES: *Making the Grade*

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**Objective:** To change a ratio to a percent.

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**Grade Level:** 5-6

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**Topic:** *Percent*

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### Using the Activity:

The focus of this activity is to instruct students how to use the calculator to change a ratio or fraction to a percent. Typically, students are instructed to change the ratio to a decimal through division and then convert the decimal to a percent by multiplying by 100. Students could use the calculator to duplicate this process. However, the calculator has the capacity to convert a ratio directly to a percent. To convert  **$a/b$  to a percent, you enter  $a \div b \%$** . This key sequence tells the calculator to find the quotient of  $a \div b$  and convert that quotient to a percent. In addition to learning how to use the calculator to convert a ratio to a percent, the activity provides a forum to help students learn about the relationship between ratio and percent. In the first problem, it is expected that students understand if you have a total of 100, by definition, the percent is obvious. In the situation where the total is other than 100, the process outlined in the Mrs. Figures scenario is followed. Have students analyze the numbers in the chart to recognize that 32 out of 40 is an equivalent ratio to 16 out of 20, and hence, the ratios have the same percent. Also since 16 out of 40 is one-half of 32 out of 40, the resulting percent is one-half of the other. Students should be made aware that if ratios are reduced to more commonly recognized ratios, the percent equivalent may be more obvious. For example, by reducing 39 out of 52 to 3 out of 4 the answer of 75% becomes obvious.

In converting ratios to percents on the calculator, often times the percent is given to multiple decimal places, i.e. 92.307692. Students should be instructed to round their answers.

*Answers:* 1. 88%, no, total is 100. 2. Spencer 80% 3. Francisco 60%  
4. Jennifer 40% 5. Samir 87.5% 6. Elizabeth 97.5% 7. Tasha 80%  
8. Hakeem 75% 9. Michicko 92.3%

### Thinking Cap

This section provides a reversal question regarding the relationship of a ratio and percent. Students must determine how many questions correct out of 48 will result in a percent equal to or greater than 80%. Give students hints such as "How do you know it has to be more than 24?" Students ought to know that 24 out of 48 is only 50%, hence it must be greater. Students can use guess and check to find the answer, 39.