

Activity 4: How Do I Earn My Grade?

Linda Wallace

CALCULATORS: Casio: *fx-260 Solar* • Casio: *fx-260 Solar School*

Teaching Notes

Grade Level: Middle School **Topic:** Percent

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

Using the Activity:

The focus of this activity is to instruct students in how to use the *fx-260* 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 also use the *fx-260* calculator to duplicate this process. However, the *fx-260* calculator has the capacity to convert a ratio directly to a percent. To convert a/b to a percent, you enter **a b shift** on the *fx-260*. This key sequence tells the calculator to find the quotient of **a b** and convert that quotient to a percent. In addition to learning how to use the *fx-260* calculator to convert a ratio to a percent, this 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 Mr. Jones 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; hence the ratios have the same percent. (The same is true of 54 out of 60 and 18 out of 20.)

Since 16 out of 40 is one-half of 32 out of 40, the resulting percent is also one-half of the other. (18 out of 20 is one-third of 54 out of 60, so the resulting percent is also one-third 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 to recognize. For example, by reducing 39 out of 52 to 3 out of 4, the answer 75% becomes obvious.

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

Answers:

1. 86% A calculator is not needed since the total correct is out of 100.

	STUDENT'S NAME	NUMBER OF QUESTIONS ON THE TEST	NUMBER OF QUESTIONS ANSWERED CORRECTLY	PERCENT CORRECT
2.	Allison	60	54	90%
3.	Aaron	60	33	55%
4.	Jose'	52	39	75%
5.	Milton	52	48	92.3%
6.	Nakita	40	20	50%
7.	Olivia	40	32	80%
8.	Rasheem	40	35	87.5%
9.	Sasha	20	16	80%
10.	Stedman	20	18	90%

Activity 4: How Do I Earn My Grade?

CALCULATORS: Casio: *fx-260 Solar* • Casio: *fx-260 Solar School*

Teaching Notes (continued)

Eastman Middle School uses the following grading scale:

A = 90% - 100%

B = 80% - 89%

C = 70% - 79%

D = 60% - 69%

F = below 60%

If a test has 125 questions, how many questions must a student get correct to score at least an A? *112* at least a B? *100* at least a C? *87* at least a D? *75*

What is the highest number of questions a student would miss and earn an F? *74*

Activity 4: How Do I Earn My Grade?CALCULATORS: Casio: *fx-260 Solar* • Casio: *fx-260 Solar School***Student Worksheet Activity 4****Problems:**

1. Mr. Jones has scored his students' math tests. Kayla earned 86 points out of a possible 100 points. What percent did Kayla get correct?

Do you need a calculator to figure out the percent? Why or why not?

Mr. Jones math tests do not always total 100 points. However, he always reports his students' scores as percents. Mr. Jones figures out the percents for the test using an *fx-260* calculator. If a test has 50 questions, and a student gets 27 correct, Mr. Jones presses the following keystrokes to determine the percentage: **27 ÷ 50 shift** The *fx-260* calculator displays the percent, 54.

Use your calculator to figure out the percent scores for the following students.

STUDENT'S NAME	NUMBER OF QUESTIONS ON THE TEST	NUMBER OF QUESTIONS ANSWERED CORRECTLY	PERCENT CORRECT
2. Allison	60	54	
3. Aaron	60	33	
4. Jose'	52	39	
5. Milton	52	48	
6. Nakita	40	20	
7. Olivia	40	32	
8. Rasheem	40	35	
9. Sasha	20	16	
10. Stedman	20	18	

Eastman Middle School uses the following grading scale:

A = 90% - 100%

B = 80% - 89%

C = 70% - 79%

D = 60% - 69%

F = below 60%

If a test has 125 questions, how many questions must a student get correct to score at least an A? _____ at least a B? _____ at least a C? _____ at least a D? _____

What is the highest number of questions a student would miss and earn an F? _____