Teacher Notes.

Lesson 24: Percent and Rates per 100

Classwork

Exercise 1

Robb's Fruit Farm consists of 100 acres on which three different types of apples grow. On 25 acres, the farm grows Empire apples. McIntosh apples grow on 30% of the farm. The remainder of the farm grows Fuji apples. Shade in the grid below to represent the portion of the farm each type of apple occupies. Use a different color for each type of apple. Create a key to identify which color represents each type of apple.

B	B	G	G	G	G	G	P	P	P
B	B	G	G	G	G	G	P	P	P
B	B	G	G	G	G	G	P	P	P
B	B	G	G	G	G	G	P	P	P
B	B	G	G	G	G	G	P	P	P
B	B	B	G	G	G	G	P	P	P
B	B	B	G	G	G	G	P	P	P
B	B	B	G	G	G	G	P	P	P
B	B	B	G	G	G	G	P	P	P
B	B	B	G	G	G	G	P	P	P

	Color Key	Part-to-Whole Ratio
Empire	Black (B)	25 : 100
McIntosh	Purple (P)	30 : 100
Fuji	Green (G)	45 : 100

Exercise 2

The shaded portion of the grid below represents the portion of a granola bar remaining.

What percent does each block of granola bar represent?

1% of the granola bar

What percent of the granola bar remains?

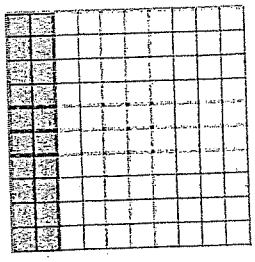
80%

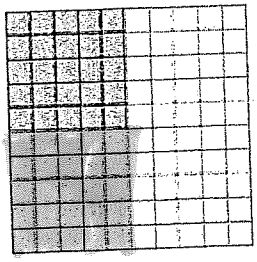
What other ways can we represent this percent?

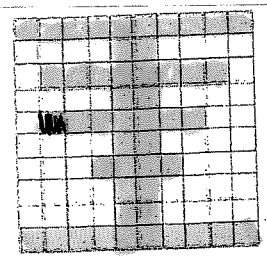
$\frac{80}{100}, \frac{8}{10}, \frac{4}{5}, \frac{16}{20}, \frac{32}{40}, \frac{64}{80}, 0.8$

0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Exercise 3

a. 

b. 

c. 

a. For each figure shown, represent the gray shaded region as a percent of the whole figure. Write your answer as a decimal, fraction, and percent.

Picture (a)	Picture (b)	Picture (c)
20% is shaded darker than the rest, 0.20, 20/100.	Answer will vary... Colored compared to total 50%, 0.50, 50/100	48%, 0.48, 48/100

b. What ratio is being modeled in each picture?

Answers will vary.

Picture A: The ratio of darker gray to the total is 20 to 100.

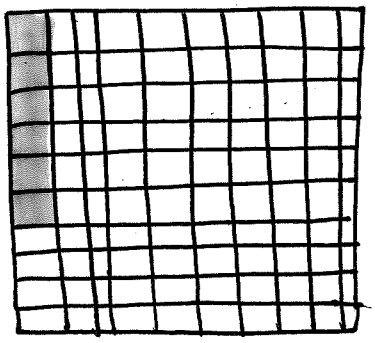
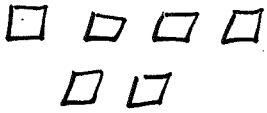
Picture B: 50 to 100

Picture C: The ratio of gray to the total is 48 to 100.

c. How are the ratios and percentages related? Answers will vary.

Exercise 4

Each relationship below compares the shaded portion (the part) to the entire figure (the whole). Complete the table.

Percentage	Decimal	Fraction	Ratio	Model
6%	0.06	$\frac{6}{100}$	6:100	
60%	0.6	$\frac{60}{100}$, $\frac{6}{10}$	60:100	
600%	6	$\frac{600}{100} = \frac{6}{1}$	6:1	 6 Wholes
32%	0.32	$\frac{32}{100}$	32:100	

55%	0.55	$\frac{55}{100}$, $\frac{11}{20}$	11:20	
90%	0.9	$\frac{9}{10}$	9:10	
70%	0.7	$\frac{7}{10}$, $\frac{70}{100}$	7:10	

Exercise 5

Mr. Brown shares with the class that 70% of the students got an A on the English vocabulary quiz. If Mr. Brown has 100 students, create a model to show how many of the students received an A on the quiz.

$70\% \rightarrow \frac{70}{100} \overset{\div 10}{=} \frac{7}{10}$

What fraction of the students received an A on the quiz?

$\frac{7}{10}$ or $\frac{70}{100}$

How could we represent this amount using a decimal?

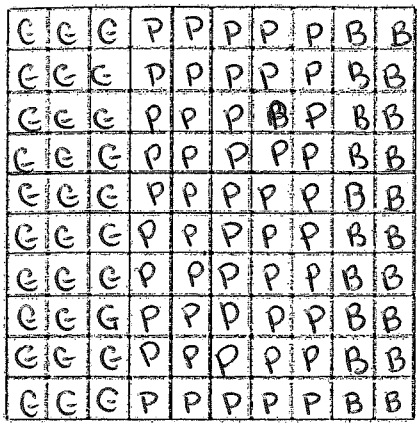
0.7 or 0.70

How are the decimal, the fraction, and the percent all related?

The decimal, fraction, & % all show 70 out of 100.

Exercise 6

Marty owns a lawn mowing service. His company, which consists of three employees, has 100 lawns to mow this week. Use the 10×10 grid to model how the work could have been distributed between the three employees.



Worker	Percentage	Fraction	Decimal
Employee 1	30%	$30/100$	0.30
Employee 2	50%	$50/100$	0.50
Employee 3	20%	$20/100$	0.20

Color over the name with the same color you used in the diagram.