

TOPIC 5

Percents

Lesson 5.1a/b

We Are Family!
Percent, Fraction, and Decimal Equivalence

Lesson 5.2a/b

Warming the Bench
Using Estimation and Benchmark Percents

Lesson 5.3a/b

The Forest for the Trees
Determining the Part and the Whole in Percent Problems



LESSON 5.1a
We Are Family!

6.NS.1

Objective Percent, Fractions , and Decimal Equivalence

Warm-Up



Rewrite each fraction as an equivalent fraction with a denominator of 100.

1. $\frac{1}{10}$

2. $\frac{2}{5}$

GETTING STARTED

They're All Part of the Same Family

Percents are everywhere! Write one or two sentences to explain the meaning of each statement.

1. Big Sale! 25% discount on all regularly priced items.

2. There is a 60 percent chance of snow tomorrow.

3. The star of the high school basketball team makes 80 percent of her free throws.

4. I scored an 80% on the 20-question test.

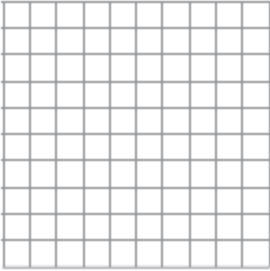
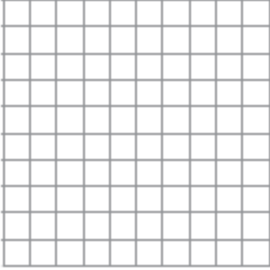
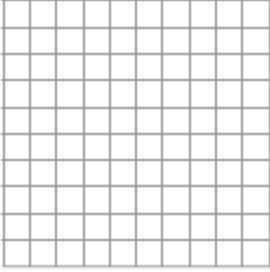
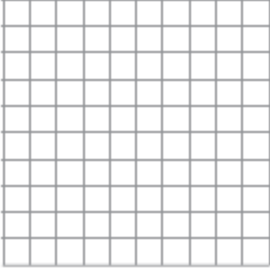
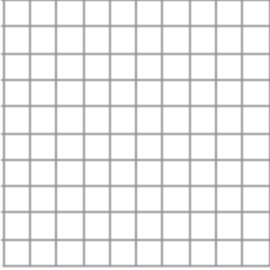


The sixth grade class is planning a field trip to Philadelphia. To decide which historical site they will visit, the 100 sixth-graders completed a survey.

1. The results of the survey are provided in the table. Complete the Ratio, Fraction, Decimal, and Grid columns with these representations of the survey results:

- a ratio using colon notation
- a fraction in lowest terms
- a decimal
- a shaded grid
- an equivalent percent

Copy the table with grid on your notebook. Complete each one row before moving on to the next row

	Ratio	Fraction	Decimal	Grid	Percent
Which excursion would you like to take while in Philadelphia?					
35 of the students chose the Liberty Bell.					
22 of the students chose Independence Hall.					
30 of the students chose the National Constitution Center.					
13 of the students chose the Betsy Ross House.					
0 of the students chose Reading Terminal Market.					

Recall that a percent can be a special part-to-whole ratio with a whole of 100. You can also think of a percent as a fraction in which the denominator is 100.

Percents, fractions, and decimals can be used interchangeably.

WORKED EXAMPLE

You can write 15 out of 100 as the fraction $\frac{15}{100}$ or $\frac{3}{20}$.

Written as a decimal, 15 out of 100 is 0.15.

Because percent means "out of 100," 15 out of 100 can also be written as 15%.

2. Express each of the ratios in the survey as a percent in the last column of the table.

3. Write a summary of the results of the student survey using percents.

4. Look at the percents and the decimals you wrote for Question 1 to determine a pattern. Use this pattern to describe how you can write any percent as a decimal.

5. Write each percent as a decimal.

a. 80%

b. 3%

c. 12.5%

d. 125%

6. Write each decimal as a percent.

a. 0.4

b. 0.07

c. 0.7381

d. 1.52

When the denominator is a factor of 100, scale up the fraction to write it as a percent. When the denominator is not a factor of 100, you can divide the numerator by the denominator to write the fraction as a decimal, which you can then write as a percent.

7. Write each fraction as a percent. Round your answer to the nearest tenth of a percent.

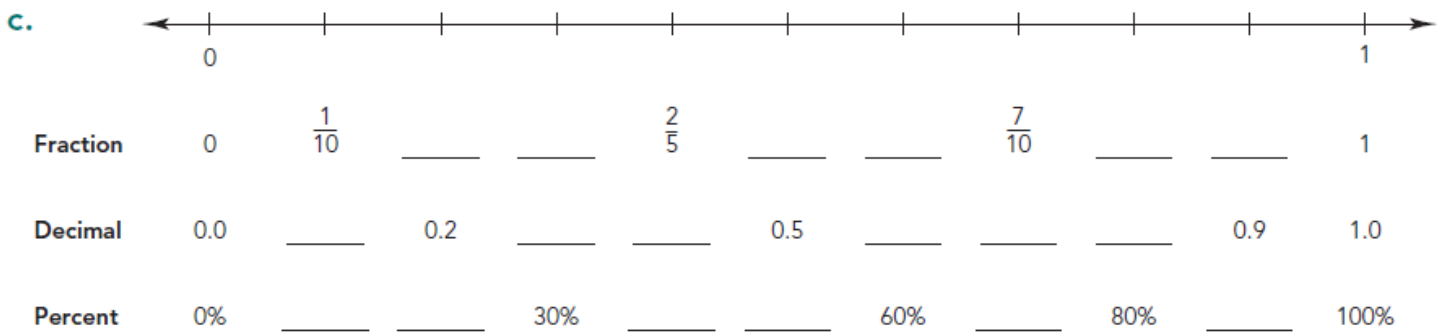
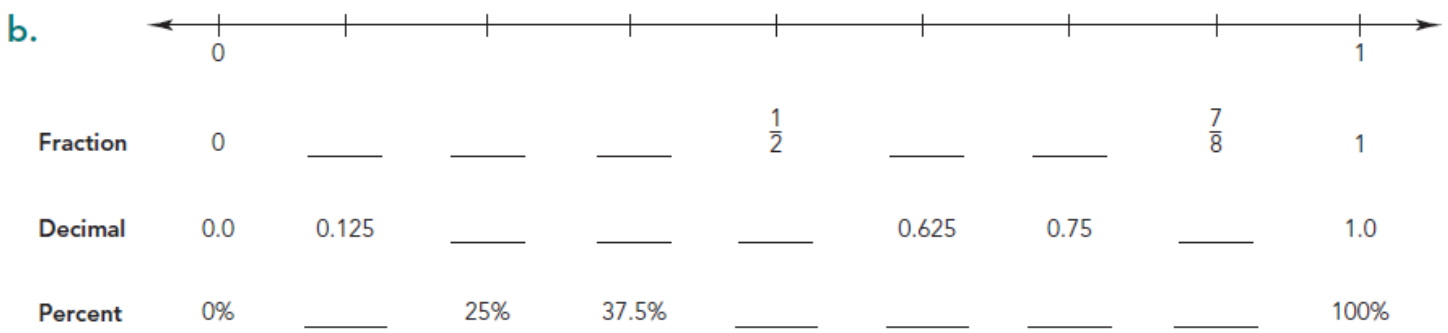
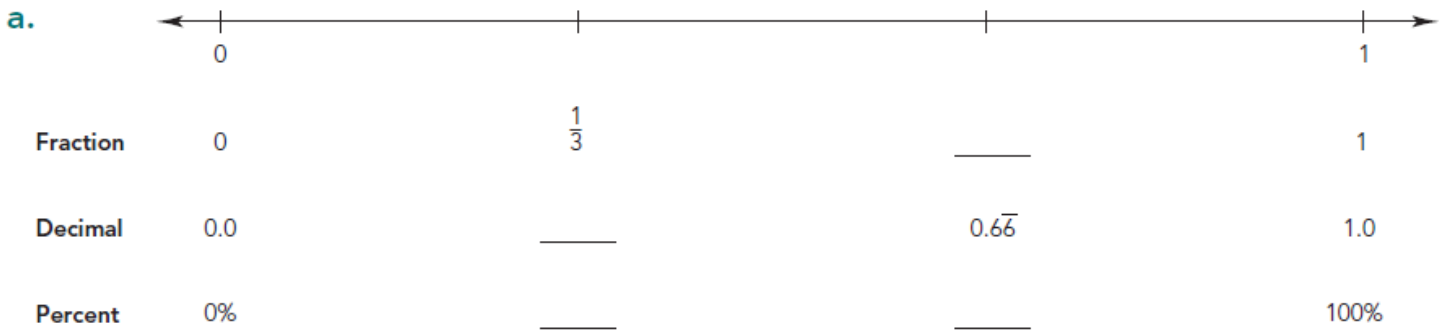
a. $\frac{4}{5}$

b. $\frac{3}{10}$

c. $\frac{3}{8}$

d. $\frac{3}{2}$

8. Copy and label each mark on the number line with a fraction, decimal, and percent. Make sure your fractions are in lowest terms.





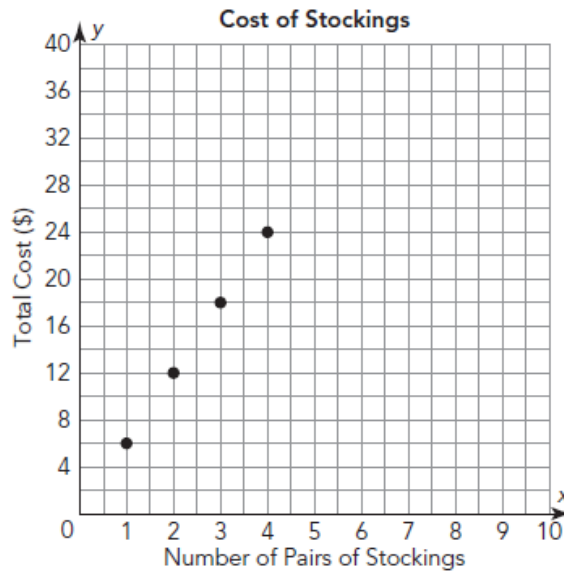
LESSON 5.1a
We Are Family!



Objective **Percent, Fractions , and Decimal Equivalence**

Review

1. Ellen loves to make her own clothes. With 45 yards of cloth, she can make 5 dresses. To accessorize her new dresses, Ellen decides to order textured stockings from an online store. The graph shows the costs of orders of stockings.



- If Ellen has 18 yards of cloth, how many dresses can she make? Create a double number line to show your answer.
 - If Ellen wants to make dresses for 6 cousins, how many yards of cloth does she need? Create a double number line to show your answer.
 - Write each point on the graph as a ratio of *number of pairs of stockings* : *total cost of the order*.
 - How much would an order of 8 pairs of stockings cost? Explain the method you used.
2. Use the standard algorithm to determine each quotient.
- $885 \div 6$
 - $9218 \div 330$