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Lesson 26: Percent of a Quantity

**Student Outcomes**

* Students find the percent of a quantity. Given a part and the percent, students solve problems involving finding the whole.

Classwork

**Example 1 (5 minutes)**

Example 1

Five of the girls on Alden Middle School’s soccer team are th grade students. Find the percentage of th graders on the team. Show two different ways of solving for the answer. One of the methods must include a diagram or picture model.

Method 1

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Method 2

Students take time to make their own diagram or model and discuss with a partner. Students will be reviewing the work they completed in Lesson 25. If they make a tape diagram, they begin by deciding to divide the tape diagram into equal rectangles. Each rectangle will represent 5 girls. From there they will need to divide the into equal sections.

If time permits, students share the model they chose and explain why it did or did not help them solve the problem. Students need to come to the conclusion that , which is the same as .

Note: Students who are struggling may need help figuring out which model to use and how to divide up the diagram. Help them think through the different options. Would it make sense to count by s, s, s, s, etc.?

**Example 2 (5 minutes)**

Example 2

Of the girls on the Alden Middle School soccer team, also play on a travel team. How many of the girls on the middle school team also play on a travel team?

One method: Therefore, of the girls are also on the travel team.

Another method: Use of tape diagram shown below.

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 of the girls also play on a travel team.

Example 3 (5 minutes)

Example 3

The Alden Middle School girls’ soccer team won of its games this season. If the team won games, how many games did it play? Solve the problem using at least two different methods.

Method 1:

 total games

Method 2:

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The girls played a total of games.

Exercises (20 minutes)

At this time, the students break out into pairs or small thinking groups to solve the problems.

Exercises

1. There are animal exhibits at the local zoo. What percent of the zoo’s exhibits does each animal class represent?

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| Exhibits by Animal Class | Number of Exhibits | Percent of the Total Number of Exhibits |
| Mammals | 30 |  |
| Reptiles & Amphibians | 15 |  |
| Fish & Insects | 12 |  |
| Birds | 3 |  |

1. A sweater is regularly . It is off the original price this week.
	1. Would the amount the shopper saved be considered the part, whole, or percent?

Part because the is the whole amount of the sweater, and we want to know the part that was saved.

* 1. How much would a shopper save by buying the sweater this week? Show two methods for finding your answer.

Method 1:

Method 2:

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The shopper would save .

1. A pair of jeans was off the original price. The sale resulted in a discount.
	1. Is the original price of the jeans considered the whole, part, or percent?

The original price is the whole.

* 1. What was the original cost of the jeans before the sale? Show two methods for finding your answer.

Method 1:

The original cost was .

Method 2:

 80

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1. Purchasing a TV that is off will save .
	1. Name the different parts with the words: PART, WHOLE, PERCENT.

 PERCENTPART WHOLE

 off Original Price

* 1. What was the original price of the TV? Show two methods for finding your answer.

Method 1:

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Method 2:

The original price was .

Closing (5 minutes)

* Describe additional questions.
* Discuss the main differences in solving strategies.
* Were there times when you preferred to use one method over another method?
* How did the steps change when you were given the part instead of the total?

Lesson Summary

Models and diagrams can be used to solve percent problems. Tape diagrams, grids, double number line diagrams, and others can be used in a similar way to using them with ratios to find the percent, the part, or the whole.

Exit Ticket (5 minutes)

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Lesson 26: Percent of a Quantity

Exit Ticket

1. Find of using two different strategies, one of which must include a pictorial model or diagram.
2. of an amount is . Calculate the whole amount using two different strategies, one of which must include a pictorial model.

Exit Ticket Sample Solutions

1. Find of using two different strategies, one of which must include a pictorial model or diagram.

 of of is .



1. of an amount is . Calculate the whole amount using two different strategies, one of which must include a pictorial model.

The whole quantity is .



Problem Set Sample Solutions

1. What is of ? Create a model to prove your answer.
2. If of a number is , what was the original number?
3. In a grid that represents , one square represents .

Use the grids below to represent and of .

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 of is . of is .