The total mass of 100 pennies is 300 grams.

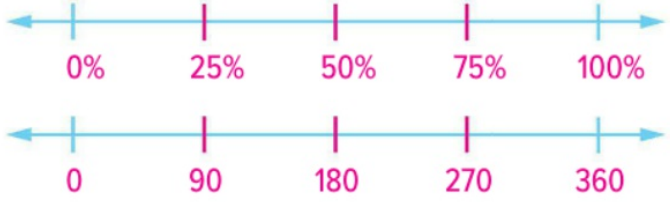
Guided Practice

Use double number lines to find the whole. (Example 1)

1. 40 is 20% of what number? **200**

Show your work.

2. 90 is 25% of what number? **360**



Write a percent proportion and solve each problem. (Examples 3 and 4)

3. 120 is 30% of what number?

$\frac{120}{\blacksquare} = \frac{30}{100}$; **400**

4. 60 is 15% of what number?

$\frac{60}{\blacksquare} = \frac{15}{100}$; **400**

5. In the first year of ownership, a new car can lose 20% of its value. If a car lost $4,200 of value in the first year, how much did the car originally cos

Rate Yourself!

5. In the first year of ownership, a new car can lose 20% of its value. If a car lost $4,200 of value in the first year, how much did the car originally cost? (Examples 2 and 5)

$21,000

6. **Building on the Essential Question** How can you use proportions to solve percent problems?

Sample answer: You can use a percent proportion to find the whole given the part and the percent.

Rate Yourself!

How well do you understand percent problems? Circle the image that applies.

Clear | Somewhat Clear | Not So Clear

For more help, go online to access a Personal Tutor.

Tutor

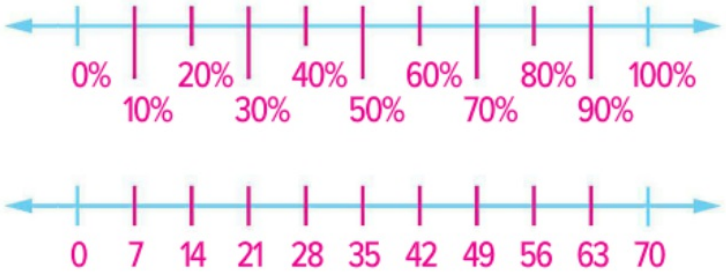
FOLDABLES Time to update your Foldable!

Independent Practice

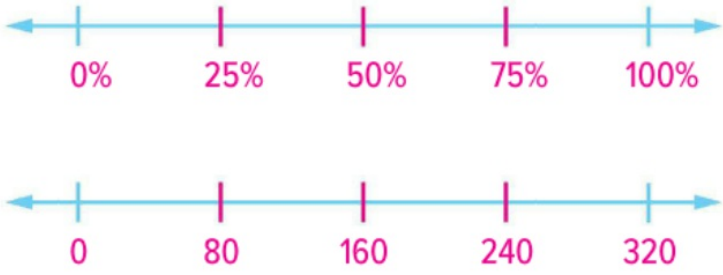
Go online for Step-by-Step Solutions

Use double number lines to find the missing number. (Example 1)

1. 63 is 90% of what number? **70**



2. 80 is 25% of what number? **320**



Write a percent proportion and solve each problem. (Examples 3 and 4)

3 22 is 44% of what number?

$\frac{22}{\blacksquare} = \frac{44}{100}$; **50**

4. 450 is 75% of what number?

$\frac{450}{\blacksquare} = \frac{75}{100}$; **600**

5 A store is having a sale where winter clothes are 60% of the origin[illegible]

6. Kai calculates that he spends 15% of a [illegible]ol day in science class. If he spends

5 A store is having a sale where winter clothes are 60% of the original price. A sweater is on sale for $30. What was the original price of the sweater? (Examples 2 and 5)

$50

6. Kai calculates that he spends 15% of a school day in science class. If he spends 75 minutes in science class, how many minutes does Kai spend in school?

(Examples 2 and 5) **500 minutes**

For Exercises 7–9, use the table.

Punch Recipe	
Ginger Ale	40%
Orange Juice	25%
Pineapple Juice	20%
Sorbet	15%

7. If you have 3 cups of pineapple juice, how many total cups of punch can you make? **15 cups**

8. How many cups of sorbet are used in 8 cups of punch?

1.2 cups

9. Elise does not like sorbet, so she omits that ingredient and adds 5 percent of each of the other ingredients. How many cups of punch will she have if she uses 6 cups of orange juice? **20 cups**

10. MP **Identify Structure** Complete the following graphic organizers. Identify the missing information.

a.

$\frac{3}{4}$	part	3
	whole	4

b.

47%	part	47%
	whole	100%

c.

12% of 225	part	12%
	whole	225

d.

120 out of 400	part	120
	whole	400

e. How does identifying the part and the whole help you to write the percent proportion? Sample answer: In a percent proportion one ratio compares a part to the whole. The other ratio is the equivalent percent written as a fraction with a denominator of 100.

H.O.T. Problems Higher Order Thinking

11. MP **Reason Abstractly** Write a percent proportion where the part and the whole are known. Solve the problem to find the percent. Sample answer: $\frac{21}{25} = \frac{\blacksquare}{100}$; 84

12. MP **Persevere with Problems** Using

explain why a commercial that says "8

12. **Persevere with Problems** Using what you know about percents, explain why a commercial that says "80% of dentists use this toothpaste" might be misleading. Sample answer: The commercial would be misleading because only the percent is known. In order for the statement to have meaning, either the part or the whole must be known. Without knowing either of these, it could be 4 of 5 dentists, or 80 of 100 dentists surveyed.

13. **Reason Inductively** The purity of gold is listed in karats. Refer to the table. If a necklace is 75% gold, what karat is it? Explain your reasoning. 18 karats; 24 is the whole and 75 is the percent, so $\frac{18}{24} = \frac{75}{100}$.

Karats	Pure Gold (%)
24	100
12	50

14. **Construct an Argument** Omar scored an 82% on his first test of the quarter. Will a score of 38 out of 50 on the second test help or hurt his grade? Explain your reasoning. It will hurt his grade. 38 out of 50 is 76%. If 76% and 82% are averaged, Omar's average grade is 79%, which is less than 82%.

15. **Persevere with Problems** At a zoo, an Asian elephant is about 3 tons and eats about 300 pounds of food a day. What percentage of its body weight does the elephant eat each day? 5%