Lesson 4-5 · Session 1

Find the Whole

Name _____ Date _____ Period _____

Maryland Standard 6.AT.4 · Learning target — I can find the whole when I know a part and the percent it represents.

Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- If you know the part and the percent, you can find the whole: whole = part divided by percent (as a decimal).
- Example: 20 is 40% of what number? 20 divided by 0.40 = 50.
- Watch out — dividing by the percent as a whole number instead of a decimal gives an answer 100 times too small.
- Check it — take your percent of the whole you found; you should get the original part back.

WORKED EXAMPLE

Finding the Whole from a Part and Its Percent A team has won 24 games, and that is 40% of the games it played. How many games did the team play?

Step 1 Pair up what you know: 24 games matches 40%.

Step 2 Step down to ten percent: divide both terms by four, giving 6 games.

Step 3 Step up to one hundred percent: multiply both terms by ten.

Step 4 Check forward: forty percent of your total should return the 24 wins.

Answer The team played 60 games in all.

Practice

1. 15 is 30% of what number? _____

Answer _____

SHOW YOUR THINKING

2. 42 is 60% of what number? _____

Answer _____

SHOW YOUR THINKING

3. A student answered 18 questions correctly, which was 75% of the test. How many total questions were on the test?

Answer _____

SHOW YOUR THINKING

4. Step down to ten percent, then build up to one hundred percent to find each whole.

a. 9 is 10% of _____
b. 16 is 20% of _____
c. 35 is 50% of _____
d. 12 is 25% of _____
e. 45 is 90% of _____
f. 28 is 70% of _____

Answer _____

SHOW YOUR THINKING

5. Ticket Booth. A booth has sold 105 tickets, and that is 35% of all the tickets it printed. How many tickets did the booth print?

Answer _____

SHOW YOUR THINKING

6. Trail Mix. A bag holds 78 g of peanuts, and that is 65% of the whole bag. How many grams does the whole bag hold?

Answer _____

SHOW YOUR THINKING

7. Class Pledges. A class has collected $88 in pledges, and that is 55% of its goal. Find the goal, then find how much more the class still needs.

Answer _____

SHOW YOUR THINKING

8. Ibrahim says that if 30 is 60% of a number, then the number must be smaller than 30 because 60% is less than 100%. Explain his mistake, then find the number.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. If 36 is 60% of a number, find the number.

Answer _____ the number

SHOW YOUR THINKING

10. If 14 is 20% of a number, find the number.

Answer _____ the number

SHOW YOUR THINKING

11. Two Steps. A survey found 27 students walk to school, which is 45% of those surveyed. How many were surveyed, and how many do not walk?

Answer _____ total and non-walkers

SHOW YOUR THINKING

12. Find the Mistake. If 20 is 40% of a number, Kim multiplied 20 by 0.4 to get 8. Explain the mistake.

Answer _____ the mistake and the answer

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 4-4 Session 1. Find 8% of 250.

Answer _____

SHOW YOUR THINKING

14. From Lesson 4-3 Session 1. 21 out of 80 is about what benchmark percent?

Answer _____

SHOW YOUR THINKING

15. From Lesson 3-2 Session 1. A printer prints 480 pages in 12 minutes. Find the unit rate.

Answer _____

SHOW YOUR THINKING

Test practice

16. If 18 is 30% of a number, the number is —

□ A. 54	□ B. 5.4
□ C. 48	□ D. 60

17. If 50 is 25% of a number, the number is —

□ A. 200	□ B. 12.5
□ C. 75	□ D. 125

18. When the percent is below 100%, the whole is —

- □ A. smaller than the part
- □ B. larger than the part
- □ C. equal to the part
- □ D. zero

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Use your whole to recompute the given part. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Identify the whole. Check your result against 0%, 50%, and 100% of that amount.