EXAMPLE 4 Find a base using the percent equation

20 is 12.5% of what number?

$a = p\% \cdot b$ **Write percent equation.**

$20 = 12.5\% \cdot b$ **Substitute 20 for a and 12.5 for p.**

$20 = 0.125 \cdot b$ **Write percent as decimal.**

$160 = b$ **Divide each side by 0.125.**

▶ 20 is 12.5% of 160.

EXAMPLE 5 Solve a real-world percent problem

SURVEY A survey asked 220 students to name their favorite pasta dish. Find the percent of students who chose the given pasta dish.

a. macaroni and cheese

b. lasagna

Type of Pasta	Students
Spaghetti	83
Lasagna	40
Macaroni and cheese	33
Fettucine alfredo	22
Baked ziti	16
Pasta primavera	15
Other	11

Solution

a. The survey results show that 33 of the 220 students chose macaroni and cheese.

$a = p\% \cdot b$ **Write percent equation.**

$33 = p\% \cdot 220$ **Substitute 33 for a and 220 for b.**

$0.15 = p\%$ **Divide each side by 220.**

$15\% = p\%$ **Write decimal as percent.**

▶ 15% of the students chose macaroni and cheese as their favorite dish.

b. The survey results show that 40 of the 220 students chose lasagna.

$a = p\% \cdot b$ **Write percent equation.**

$40 = p\% \cdot 220$ **Substitute 40 for a and 220 for b.**

$0.18 \approx p\%$ **Divide each side by 220.**

$18\% \approx p\%$ **Write decimal as percent.**

▶ About 18% of the students chose lasagna as their favorite dish.

✓ **GUIDED PRACTICE** for Examples 4 and 5

In Exercises 7 and 8, use the percent equation to answer the question.

7. 65 is 62.5% of what number?   **8.** 50 is 125% of what number?

9. In Example 5, what percent of students chose fettucine alfredo?