7-7 Problem-Solving Investigation: Solve a Simpler Problem
- Analyze the Strategy

1. Explain when you would use the *solve a simpler problem* strategy.

Sample answer: when there is a way to solve the problem in which you can arrive at the answer by using simpler numbers

3. **WRITING IN MATH** Write a problem that can be solved by working a simpler problem. Then write the steps to find the solution.

Sample answer: Three workers can make three desks in three days. How many desks can nine workers working at the same rate make in 30 days?
$3 \div 3 = 1$ Each worker can make a desk in three days.
$30 \div 3 = 10$ desks in 30 days.
$10 \times 9 = 90$ desks
So, 9 workers can make 90 desks in 30 days.

7-7 Problem-Solving Investigation: Solve a Simpler Problem
- Mixed Problem Solving

Use the *solve a simpler problem* strategy to solve.

5. **MOVIES**   Ebony estimates that she watches 500 movies per year. About how many movies does she watch per week?

Explore: We know how many movies she watches in a year. We need to find the amount of movies per week.
Plan: Solve a simpler problem by rounding the number of weeks in a year.
Solve: Since there are 52 weeks in a year, we can round that to 50. We would then divide 500 by 50.
$500 \div 50 = 10$
Check: Since $500 \div 52 = 9.6$, our answer is a good estimate of the number of movies that Ebony watches per week.

Use any strategy to solve. Some strategies are shown below.
PROBLEM-SOLVING STRATEGIES
- Guess and check.
- Look for a pattern.
- Solve a simpler problem.
- Act it out.

7. **WATCHES** Yuma's watch beeps every hour. How many times will it beep in one week?

Explore: We need to find the number of hours in one week.
Plan: Multiply the number of hours in 1 day by 7.
Solve: There are 24 hours in one day.
$24 \times 7 = 168$
So, there are 168 hours in 1 week.
Yuma's watch will beep 168 times in one week.
Check: Since $24 \times 7 = 168$, the answer is correct.

9. **EXERCISE**   To train for a marathon, you plan to run one mile the first week and double the number of miles each week for 6 weeks. How many miles will you run the sixth week?

Week	Miles
1	1
2	$1 \times 2 = 2$
3	$2 \times 2 = 4$
4	$4 \times 2 = 8$
5	$8 \times 2 = 16$
6	$16 \times 2 = 32$

You will run 32 miles in the 6th week.

11. **PARTY FAVORS**   Mia has a string of ribbon 72 inches long. She needs to cut the ribbon into 2-inch pieces to tie around party favors. If it takes 1 second to make each cut, how long will it take to cut all of the ribbon into 2-inch pieces?

Explore: We know Mia has a string 72 inches long and how long it takes to make each cut.
Plan: We first need to figure out how many cuts will be required. If you cut a 72 inch long ribbon every 2 inches you would have to make 35 cuts.
Solve: Since each cut only takes one second it would take her 35 seconds to make all the cuts.
Check: Since 35 × 1 = 35 our answer is correct.

13. **PIE**   The number of each type of pie in Rose's bakery is shown in the bar graph. How many times as many strawberry pies are there as peach pies?
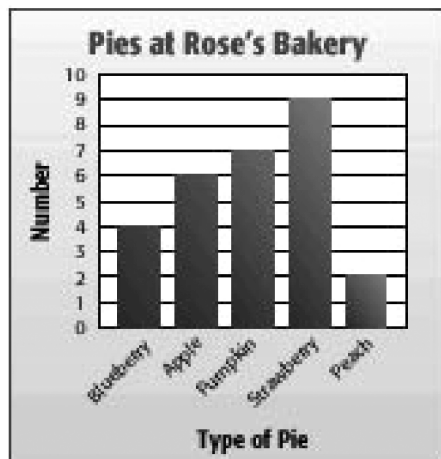
Divide the number of strawberry pies to the number of peach pies.
$9 \div 2 = 4.5$

15. **PATTERNS** Describe the pattern then find the missing number.
4, 12, _, 108, 324

times 3; 36