1-1 A Plan for Problem Solving - Practice and Problem Solving

Use the four-step plan to solve each problem.

3. **RIVERS** The longest river in the world is the Nile River. It is 4,132 miles long. The longest river in the United States is the Missouri River. It is 2,540 miles long. How much longer is the Nile than the Missouri?

   Explore: From the problem you can see the Nile River is 4,132 miles long and the Missouri River is 2,540.
   Plan: Subtract the length of the Missouri River from the length of the Nile River to find the distance.
   Solve: $4,132 - 2,540 = 1,592$
   The Nile River is 1,592 miles longer than the Missouri River.
   Check: Since 1,592 + 2,540 = 4,132, the answer correct.

5. **PATTERNS** Complete the pattern: 5, 11, 17, 23, ■, ■, ■.

   Explore: You are given a list of numbers with blank spaces to fill. You can use the numbers given to find a pattern and fill in the blank spaces.
   Plan: Look for a pattern in the first four numbers: 5, 11, 17, 23. Use that pattern to figure out the last three numbers in the list.
   Solve: Each of the first four numbers increases by six: 5, 5 + 6 = 11, 11 + 6 = 17, 17 + 6 = 23.
   Using this pattern, the next three numbers are
   23 + 6 = 29, 29 + 6 = 35, and 35 + 6 = 41.
   The list is 5, 11, 17, 23, 29, 35, 41.
   Check: Since 41 − 6 = 35, 35 − 6 = 29, and
   29 − 6 = 23, the answer is correct.

7. **MONEY** The Hamres are buying a new car. They will pay $350 per month for 4 years. How much will they spend in all for the car?

   Explore: You know how much each payment will be and how long they will need to make payments. Multiply the total number of payments by the amount of each payment.
   Plan: First find the number of payments. 4 years times 12 months equals 48 payments.
   $4 \times 12 = 48$
   Solve: Now multiply the number of payments by the cost of each payment.
   $48 \times 350 = 16,800$
   Check: Since 16,800 ÷ 48 = 350 our answer is correct.

9. **CHALLENGE** Complete the pattern: 3, 3, 6, 18, 72, ■.

   Explore: You are given a list of numbers. You want to find the next number in the list.
   Plan: Use the list to find a pattern, and then use the pattern to figure out the next number in the list.
   Solve: Observe the pattern: Each number is found by multiplying the previous two numbers. So the next number in the list will be 72 × 18 = 360. The completed pattern is 3, 3, 6, 18, 72, 360.
   Check: Since 360 ÷ 72 = 18 our answer is correct.

11. Michael can swim 8 laps in 4 minutes. At this rate, how long will it take him to swim 40 laps?
A 24 min
B 20 min
C 15 min
D 10 min

B;
Explore: You know how long it takes Michael to swim 8 laps. You want to know how much time it will take him to swim 40 laps.
Plan: For 8 laps, it takes Michael 4 minutes.

$$\frac{8 \text{ laps}}{4 \text{ minutes}} = \frac{40 \text{ laps}}{x \text{ minutes}}$$

Solve: $\dfrac{8 \text{ laps} \times 5}{4 \text{ minutes} \times 5} = \dfrac{40 \text{ laps}}{x \text{ minutes}}$

$$x = 20 \text{ minutes}$$

It will take Michael 20 minutes to swim 40 laps.
Check: Since Michael can swim 2 laps every minute, and 20 minutes × 2 = 40 laps, the answer is correct.

PREREQUISITE SKILL Divide.

13. $42 \div 3$

$42 \div 3 = 14$

15. $49 \div 7$

$49 \div 7 = 7$