2.2 Part 2 Problem-Solving Strategy: Working Backwards

There are several strategies for solving problems:

- work backwards
- make a table
- guess & check
- act it out

- solve a simpler problem
- look for a pattern
- make a diagram
- eliminate possibilities

---

1. An ice sculpture is melting at a rate of half its weight every hour. After 8 hours, it weighs $\frac{5}{16}$ of a pound. How much did it weigh in the beginning?

every hour   mult. by ½ ———→ div by ½

mult. by rec
mult by 2

$$\frac{5}{16} \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$\boxed{80 \text{ lb}}$$

2.   A number is decreased by 35, then
     add 35
     multiplied by 6, then added to 87,
     divide by 6   _subtract 87_
     then divided by 3. The result is 67.
     mult. by 3
     What is the number?

$67 \times 3 = 201$

$$201 - 87 = 114$$

$$114 \div 6 = 19$$

$$19 + 35 = \boxed{54}$$

3.   Kristin spent one fifth of her money for
     gas. Then she spent half of what was left
     divide by ½ / mult. by 2
     for a haircut. She bought lunch for $7.
     When she got home, she had $13 left.
     How much did Kristin have originally?

$$13 + 7 = 20$$

4/5 of her money ↓

$$20 \times 2 = 40 \cdot \frac{5}{4} = \boxed{\$50}$$

4.   The price of a television at Walmart is now two-thirds of the price it was last week. Now the price is $360. What was the price last week?

mult by 3/2

$$360 \cdot \frac{3}{2} = \boxed{\$540}$$

5.   Each year a particular car is worth about five-sevenths of its value the previous year. Now this car is worth $12,000. What was its value two years ago?

mult by 7/5

$$12,000 \cdot \frac{7}{5} \cdot \frac{7}{5} = \boxed{\$23,520}$$

1. A number is doubled. Then 5 is subtracted

    from the result and the new result is

    divided by 3. The final result is 25.

    What is the number?

$$25 \times 3 = 75$$
$$+ \; 5$$
$$\overline{}$$
$$80 \div 2 = \boxed{40}$$

2. A number is increased by 25. Then the

    result is multiplied by 2 and 27 is subtracted

    from the new result. The final result is 223.

    What is the number?

$$223$$
$$+ 27$$
$$\overline{}$$
$$250 \div 2 = 125$$
$$- 25$$
$$\overline{}$$
$$\boxed{100}$$

3.   The price on a camera is now four-fifths

of the price it was two weeks ago. Now

the price is $250. What was the price two

weeks ago?

$$\$250 \cdot \frac{5}{4} = \frac{625}{2} = \$312.50$$

4.   An icicle is melting at the rate of three-

fourths of its weight every hour. After 3

hours, its weighs five-eighths of a pound.

How much did it weigh in the beginning?

$$\frac{5}{8} \cdot \frac{4}{3} \cdot \frac{4}{3} \cdot \frac{4}{3} = \boxed{\frac{40}{27} \text{ lb}}$$

5. Each year a computer part is worth about

   two thirds of its value the previous year.

   Now this part is worth $60. What was its

   value two years ago?

$$\$60 \cdot \frac{3}{2} \cdot \frac{3}{2} = \$135$$