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## Solving a Percent Equation on the ISEE Middle and Upper Level

LESSON GOAL: Write and solve a percent equation to solve word problems and quantitative comparisons.

ISEE Question: A book is on sale for $20 \%$ off. The discounted price of the book is $\$ 18$. What was the original price before the discount?

Solution: Write and then solve a percent equation that matches the word problem.

STEP 1: Identify/underline the key numbers and circle or underline what the question is asking.

STEP 2: Convert the word problem into an equation. Convert percents into fractions or decimals. "Of" means "multiply" and "is" means "equal." Use a variable for your unknown value.

$$
\begin{gathered}
\text { Let } b=\text { original price } \\
b-0.2 b=18 \\
0.8 b=18
\end{gathered}
$$

STEP 3: Solve the equation.

$$
\begin{gathered}
0.8 b=18 \\
\frac{0.8}{0.8} b=\frac{18}{0.8} \\
b=22.5
\end{gathered}
$$

The original price of the book was $\$ 22.50$.

