Finding the Percent of a Number
Middle and Upper Level

> LESSON GOAL: Quickly solve word problems and quantitative comparisons that involve finding the percent of a number.

ISEE Quantitative Comparison:

Column A	*Column B*
40% of 80	90% of 30

Solution: There are a few ways to find the percent of a number, so you can choose the one that's easiest and fastest for you.

The Decimal Method
Convert your percentage into a decimal by moving the decimal point two places to the left. Then, multiply the number by that decimal.
Column A: 40% = 0.4 → 0.4 x 80 = **32**
Column B: 90% = 0.9 → 0.9 x 30 = **27**

Helpful Tip: Estimate the percentage using a close fraction to make sure your answer is reasonable and ensure against decimal point errors. 40% is a little less than 50% (half), so column A should be a little less than half of 80. 90% is a little less than 100% (one whole), so your answer should be a little less than 30.

The Ratio Method
Convert your percentage into a ratio over 100, and then multiply the ratio by the number. Reduce and cross-cancel to make the math easier.

Helpful Tip: The ratio method works best for ratios that are easily reduced to simple fractions and numbers that can cross-cancel with those fractions.

Column A:

$$40\% = \frac{40}{100} \times \frac{80}{1} = \frac{2}{5} \times \frac{80}{1} = \frac{2}{1} \times \frac{16}{1} = 32$$

Column B:

$$90\% = \frac{90}{100} \times \frac{30}{1} = \frac{9}{10} \times \frac{30}{1} = \frac{9}{1} \times \frac{3}{1} = 27$$

The 10% Shortcut
STEP 1: Find 10% of your number by moving the decimal point to the left once. If your number ends in 0, remove the zero.
Column A: 10% of 80 = 8   **Column B:** 10% of 30 = 3

STEP 2: Divide your percent by 10. **Column A:** 40% ÷ 10 = 4   **Column B:** 90% ÷ 10 = 9

STEP 3: Multiply your 10% value by the percent's multiple of 10. **Column A:** 8 × 4 = 32   **Column B:** 9 × 3 = 27

Helpful tip: Use the 10% shortcut to mentally calculate percentages that are multiples of 10 (30%, 70%, etc). You can also use it with multiples of 5, as 5% is half of 10%.

No matter which method you use, column A is greater.

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