

Check Your Understanding 2.4 (Day 1 — Begin in Class)

Covers the law of detachment and law of syllogism introduced today. Students begin in the last 10–15 minutes of class.

Basic	Intermediate	Advanced
<i>Law of Detachment — Basic</i> 1. What can you conclude? Name the law. <i>a. If a shape is a rectangle, then it has four right angles. PQRS is a rectangle. $\therefore$?</i> <i>b. If it is below freezing, then the pond ices over. It is below freezing. $\therefore$?</i>	<i>Law of Syllogism — Intermediate</i> 2. Chain the following into a single conclusion: <i>If you miss the bus $\rightarrow$ you are late for school.</i> <i>If you are late for school $\rightarrow$ you miss the quiz.</i> <i>If you miss the quiz $\rightarrow$ you fail the unit.</i> a. What can you conclude if you miss the bus? b. Write the conclusion symbolically.	<i>Law of Syllogism — Advanced</i> 3. A student writes: <i>"If I study $\rightarrow$ I pass the test. If I pass the test $\rightarrow$ I pass the class. If I pass the class $\rightarrow$ I graduate. Therefore, if I study, I graduate."</i> a. Is this a valid application of the law of syllogism? Explain. b. Now the student adds: 'If I graduate $\rightarrow$ I get a job.' What is the new final conclusion? c. Does the length of the chain change the validity of the conclusion? Explain.

CYU 2.4 Day 1 — Answer Key

1a. PQRS has four right angles. Law of Detachment.

1b. The pond ices over. Law of Detachment.

2a. If you miss the bus, you fail the unit.

2b. Let m = miss bus, l = late, q = miss quiz, f = fail unit. $m \rightarrow l$, $l \rightarrow q$, $q \rightarrow f$, $\therefore m \rightarrow f$.

3a. Yes — each consequent matches the next antecedent, so the law of syllogism applies at each step.

3b. If I study, I get a job.

3c. No — a chain of any length is valid as long as each link connects correctly. The move is the same whether there are 3 steps or 14.

