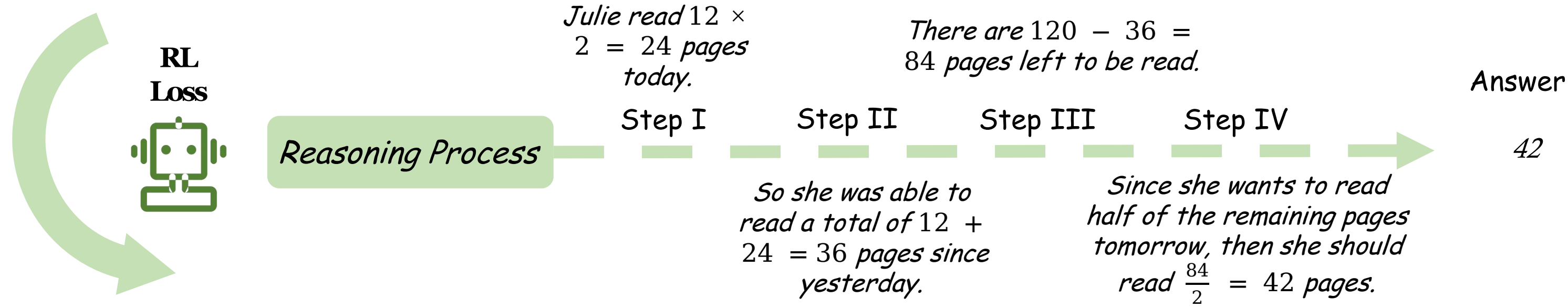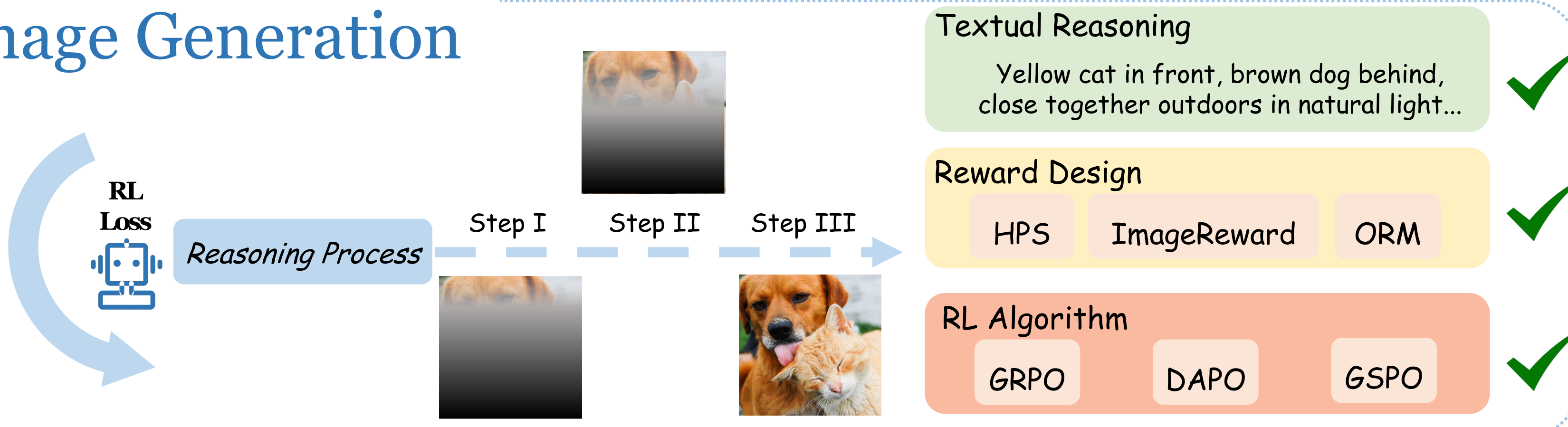# RL in Text Generation

Question

Julie is reading a 120-page book. She read 12 pages yesterday and twice that today. If she plans to read half of what's left tomorrow, how many pages will she read?

RL Loss

Reasoning Process

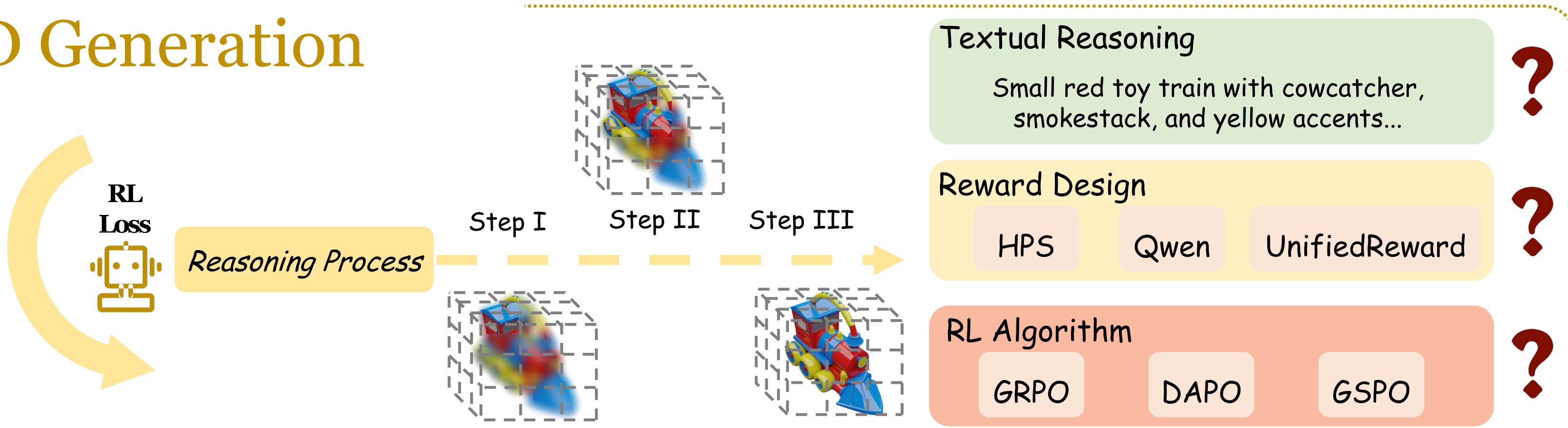*Julie read $12 \times 2 = 24$ pages today.*

Step I **Step II** **Step III** **Step IV**

So she was able to read a total of $12 + 24 = 36$ pages since yesterday.

There are $120 - 36 = 84$ pages left to be read.

Since she wants to read half of the remaining pages tomorrow, then she should read $\frac{84}{2} = 42$ pages.

Answer

42

RL in Image Generation

Image Prompt

A yellow cat and a brown dog.

RL Loss

Reasoning Process

Step I **Step II** **Step III**

Textual Reasoning

Yellow cat in front, brown dog behind, close together outdoors in natural light... ✓

Reward Design

HPS   ImageReward   ORM ✓

RL Algorithm

GRPO   DAPO   GSPO ✓

RL in 3D Generation

3D Prompt

Toy train with red boiler and blue domes

RL Loss

Reasoning Process

Step I **Step II** **Step III**

Textual Reasoning

Small red toy train with cowcatcher, smokestack, and yellow accents... ❓

Reward Design

HPS   Qwen   UnifiedReward ❓

RL Algorithm

GRPO   DAPO   GSPO ❓

Investigation Result

CLIP Score ⬆

- 22.7
- 24.0
- 25.2
- 26.5
- 29.3

Kernel Distance ⬇

- 0.249
- 0.241
- 0.228
- 0.210
- 0.156
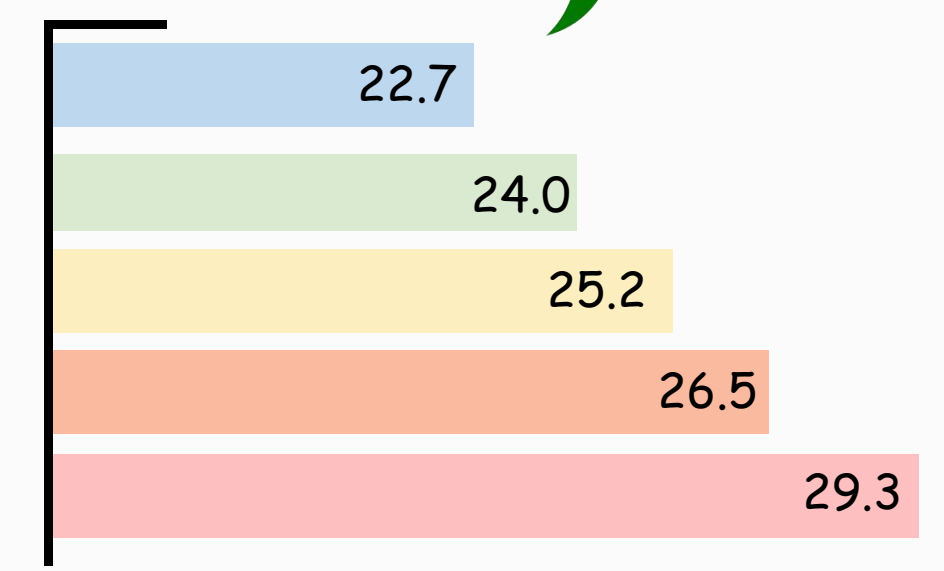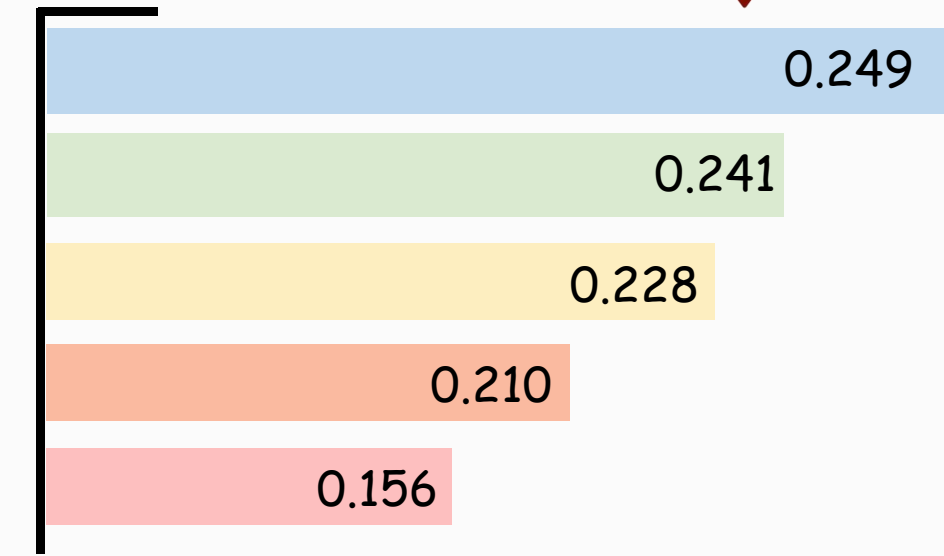
Legend:
- Baseline
- Textual Reasoning
- Reward Design
- RL Algorithm
- RL Paradigm