# Evaluating Composite Functions

## Background

This prompt tests an LLM's mathematical capabilities by prompting it to evaluate a given composition function.

## Prompt

Suppose $g(x) = f^{-1}(x), g(0) = 5, g(4) = 7, g(3) = 2, g(7) = 9, g(9) = 6$ what is $f(f(f(6)))$?

## Code / API

**GPT-4 (OpenAI)**    Mixtral MoE 8x7B Instruct (Fireworks)

```python
from openai import OpenAI
client = OpenAI()

response = client.chat.completions.create(
model="gpt-4",
messages=[
    {
    "role": "user",
    "content": "Suppose  g(x) = f^{-1}(x), g(0) = 5, g(4) = 7, g(3) = 2, g(7) = 9, g(9) = 6
what is f(f(f(6)))?\n"
    }
],
temperature=1,
max_tokens=256,
top_p=1,
frequency_penalty=0,
presence_penalty=0
)
```

## Reference

- [Sparks of Artificial General Intelligence: Early experiments with GPT-4](#) (13 April 2023)

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