

Successful Calculations:

1. Input: $5*(3+6)/3$

a. Output: 15

```
<step><step_name>add</step_name>
{"x": 3, "y": 6}<step><step_name>multiply</step_name>
{"x": 5, "y": 1}</step>
<step><step_name>divide</step_name>
{"x":45,"y":3}</step>
<step><step_name>final_answer</step_name>
{"answer":"The result of 5*(3+6)/3 is 15.", "tools_used": ["functions.add", "functions.multiply", "functions.divide"]}

{'name': 'final_answer', 'args': {'answer': 'The result of 5*(3+6)/3 is 15.', 'tools_used': ['functions.add', 'functions.multiply', 'functions.divide']}}

Bot Output: The result of 5*(3+6)/3 is 15.
Tools Used: ['functions.add', 'functions.multiply', 'functions.divide']

===== Conversation history =====

Human: 5*(3+6)/3

AI: The result of 5*(3+6)/3 is 15.
=====

Tool Usage Log:
{'session_id': 'test_1', 'turn': 1, 'query': '5*(3+6)/3', 'tool': 'add', 'tool_args': {'x': 3, 'y': 6}, 'tool_result_summary': '9', 'times_executed': 1}, {"session_id": "test_1", "turn": 2, "query": "9", "tool": "multiply", "tool_args": {"x": 5, "y": 1}, "tool_result_summary": "5", "times_executed": 1}, {"session_id": "test_1", "turn": 3, "query": "5", "tool": "divide", "tool_args": {"x": 45, "y": 3}, "tool_result_summary": "15.0", "times_executed": 1}, {"session_id": "test_1", "turn": 4, "query": "15.0", "tool": "final_answer", "tool_args": {"answer": "The result of 5*(3+6)/3 is 15."}, "tool_result_summary": null, "times_executed": 1}
```

2. Input: $3^3*(4+7)$

a. Output: 297

```
<step><step_name>exponentiate</step_name>
{"x": 3, "y": 3}<step><step_name>add</step_name>
{"x": 4, "y": 7}</step>
<step><step_name>multiply</step_name>
{"x": 27, "y": 11}</step>
<step><step_name>final_answer</step_name>
{"answer": "297", "tools_used": ["functions.exponentiate", "functions.add", "functions.multiply"]}

{'name': 'final_answer', 'args': {'answer': '297', 'tools_used': ['functions.exponentiate', 'functions.add', 'functions.multiply']}, 'id': 'final_answer'}

Bot Output: 297
Tools Used: ['functions.exponentiate', 'functions.add', 'functions.multiply']

===== Conversation history =====

Human: 5*(3+6)/3

AI: The result of 5*(3+6)/3 is 15.

Human: 3^3*(4+7)

AI: 297
=====

Tool Usage Log:
{'session_id': 'test_1', 'turn': 1, 'query': '5*(3+6)/3', 'tool': 'add', 'tool_args': {'x': 3, 'y': 6}, 'tool_result_summary': '9', 'times_executed': 1}, {"session_id": "test_1", "turn": 2, "query": "9", "tool": "exponentiate", "tool_args": {"x": 3, "y": 3}, "tool_result_summary": "27", "times_executed": 1}, {"session_id": "test_1", "turn": 3, "query": "27", "tool": "multiply", "tool_args": {"x": 45, "y": 3}, "tool_result_summary": "135", "times_executed": 1}, {"session_id": "test_1", "turn": 4, "query": "135", "tool": "divide", "tool_args": {"x": 135, "y": 11}, "tool_result_summary": "12.272727272727273", "times_executed": 1}, {"session_id": "test_1", "turn": 5, "query": "12.272727272727273", "tool": "final_answer", "tool_args": {"answer": "The result of 3^3*(4+7) is 297."}, "tool_result_summary": null, "times_executed": 1}
```

Unsuccessful Calculations:

1. Input: $2*(5*(3+6)/3)^3$
 - a. Max Iteration = 10
 - b. Output: 2430
 - c. Actual: 6750

```
<step><step_name>add</step_name>
{"x": 3, "y": 6}<step><step_name>divide</step_name>
{"x": 5, "y": 3}</step>
<step><step_name>multiply</step_name>
{"x": 3, "y": 6}<step><step_name>divide</step_name>
{"x": 5, "y": 3}</step>
<step><step_name>add</step_name>
{"x": 3, "y": 6}<step><step_name>divide</step_name>
{"x": 5, "y": 3}</step>
<step><step_name>multiply</step_name>
{"x": 2, "y": 1.666666666666667}<step><step_name>exponentiate</step_name>
{"x": 9, "y": 3}</step>
<step><step_name>multiply</step_name>
{"x": 3.333333333333335, "y": 729}</step>
<step><step_name>final_answer</step_name>
{"answer": "The value of  $2*(5*(3+6)/3)^3$  is 2430.", "tools_used": ["functions.add", "functions.divide", "functions.multiply", "functions.exponentiate"]}

{'name': 'final_answer', 'args': {'answer': 'The value of  $2*(5*(3+6)/3)^3$  is 2430.', 'tools_used': ['functions.add', 'functions.divide', 'functions.multiply', 'functions.exponentiate']}}

Bot Output: The value of  $2*(5*(3+6)/3)^3$  is 2430.
Tools Used: ['functions.add', 'functions.divide', 'functions.multiply', 'functions.exponentiate']

===== Conversation history =====

Human:  $2*(5*(3+6)/3)^3$ 

AI: The value of  $2*(5*(3+6)/3)^3$  is 2430.
=====
```

1. Input: $2*(5*(3+6)/3)^3$
 - a. Max Iteration = 5
 - b. Exits after exceeding max iteration

```
<step><step_name>add</step_name>
{"x": 3, "y": 6}<step><step_name>divide</step_name>
{"x": 5, "y": 3}</step>
<step><step_name>multiply</step_name>
{"x": 3, "y": 6}<step><step_name>divide</step_name>
{"x": 5, "y": 3}</step>
<step><step_name>multiply</step_name>
{"x": 3, "y": 6}</step>
<step><step_name>divide</step_name>
{"x": 5, "y": 3}</step>
<step><step_name>exponentiate</step_name>
{"x": 1.666666666666667, "y": 3}</step>
{"answer": "No answer found or iteration limit reached"}

===== Conversation history =====

Human:  $2*(5*(3+6)/3)^3$ 

AI: No answer found
=====

Tool Usage Log:
{'session_id': 'test_1', 'turn': 1, 'query': '2*(5*(3+6)/3)^3', 'tool': 'add', 'tool_args': {'x': 3, 'y': 6}, 'tool_result_summary': '9', 'timestamp': datetime.datetime(2024, 1, 1, 12, 0, 0)}, {"session_id": "test_1", "turn": 2, "query": "2*(5*(3+6)/3)^3", "tool": "multiply", "tool_args": {"x": 3, "y": 6}, "tool_result_summary": "18", "timestamp": datetime.datetime(2024, 1, 1, 12, 0, 0)}, {"session_id": "test_1", "turn": 3, "query": "2*(5*(3+6)/3)^3", "tool": "divide", "tool_args": {"x": 9, "y": 3}, "tool_result_summary": "18", "timestamp": datetime.datetime(2024, 1, 1, 12, 0, 0)}, {"session_id": "test_1", "turn": 4, "query": "2*(5*(3+6)/3)^3", "tool": "exponentiate", "tool_args": {"x": 1.666666666666667, "y": 3}, "tool_result_summary": "18", "timestamp": datetime.datetime(2024, 1, 1, 12, 0, 0)}
```