

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.
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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': 1}
{'session_id': 'test_1', 'turn': 2, 'query': ' $5*(3+6)/3$ ', 'tool': 'divide', 'tool_args': {'x': 45, 'y': 3}, 'tool_result_summary': '15.0', 'times': 2}
{'session_id': 'test_1', 'turn': 3, 'query': ' $5*(3+6)/3$ ', 'tool': 'final_answer', 'tool_args': {'answer': 'The result of  $5*(3+6)/3$  is 15.', 'tools_used': ['functions.add', 'functions.multiply', 'functions.divide']}, 'tool_result_summary': 'The result of  $5*(3+6)/3$  is 15.', 'times': 3}
```

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_1'}
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': 1}
{'session_id': 'test_1', 'turn': 2, 'query': ' $5*(3+6)/3$ ', 'tool': 'divide', 'tool_args': {'x': 45, 'y': 3}, 'tool_result_summary': '15.0', 'times': 2}
{'session_id': 'test_1', 'turn': 3, 'query': ' $5*(3+6)/3$ ', 'tool': 'final_answer', 'tool_args': {'answer': 'The result of  $5*(3+6)/3$  is 15.', 'tools_used': ['functions.add', 'functions.multiply', 'functions.divide']}, 'tool_result_summary': 'The result of  $5*(3+6)/3$  is 15.', 'times': 3}
{'session_id': 'test_1', 'turn': 1, 'query': ' $3^3*(4+7)$ ', 'tool': 'exponentiate', 'tool_args': {'x': 3, 'y': 3}, 'tool_result_summary': '27', 'times': 1}
{'session_id': 'test_1', 'turn': 2, 'query': ' $3^3*(4+7)$ ', 'tool': 'multiply', 'tool_args': {'x': 27, 'y': 11}, 'tool_result_summary': '297', 'times': 2}
{'session_id': 'test_1', 'turn': 3, 'query': ' $3^3*(4+7)$ ', 'tool': 'final_answer', 'tool_args': {'answer': '297', 'tools_used': ['functions.exponentiate', 'functions.multiply']}, 'tool_result_summary': '297', 'times': 3}
```

Unsuccessful Calculations:

1. Input: $2 \cdot (5 \cdot (3+6)/3)^3$
 - 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": 1.6666666666666667}<step><step_name>exponentiate</step_name>
{"x": 9, "y": 3}</step>
<step><step_name>multiply</step_name>
{"x": 3.3333333333333335, "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']
```

1. Input: $2 \cdot (5 \cdot (3+6)/3)^3$
 - 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":1.6666666666666667,"y[WARN] Max iteration limit (5) reached - stopping agent loop.
":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(
{'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(
{'session_id': 'test_1', 'turn': 3, 'query': '2*(5*(3+6)/3)^3', 'tool': 'multiply', 'tool_args': {'x': 3, 'y': 6}, 'tool_result_summary': '19', 'timestamp': datetime.datetime(
```