

X Quantum Evaluation

Give a score to each explanation for a specific quantum algorithm

* Required

Amplitude Estimation

Algorithm Code

```
1. OPENQASM 2.0;
2. include "qelib1.inc";
3. qreg eval[4];
4. qreg q[1];
5. creg meas[5];
6. u2(0,-pi) eval[0];
7. u2(0,-pi) eval[1];
8. u2(0,-pi) eval[2];
9. u2(0,-pi) eval[3];
10. u3(0.9272952180016122,0,0) q[0];
11. cx eval[0],q[0];
12. u(-0.9272952180016122,0,0) q[0];
13. cx eval[0],q[0];
14. u3(0.9272952180016122,0,0) q[0];
15. cx eval[1],q[0];
16. u(-1.8545904360032244,0,0) q[0];
17. cx eval[1],q[0];
18. u3(1.8545904360032244,0,0) q[0];
19. cx eval[2],q[0];
20. u(-3.7091808720064487,0,0) q[0];
21. cx eval[2],q[0];
22. u3(2.574004435173138,-pi,-pi) q[0];
23. cx eval[3],q[0];
24. u(-7.4183617440128975,0,0) q[0];
25. cx eval[3],q[0];
26. h eval[3];
27. cp(-pi/2) eval[2],eval[3];
28. cp(-pi/4) eval[1],eval[3];
29. cp(-pi/8) eval[0],eval[3];
30. h eval[2];
31. cp(-pi/2) eval[1],eval[2];
32. cp(-pi/4) eval[0],eval[2];
33. h eval[1];
34. cp(-pi/2) eval[0],eval[1];
35. h eval[0];
36. u(7.4183617440128975,0,0) q[0];
37. barrier eval[0],eval[1],eval[2],eval[3],q[0];
38. measure eval[0] -> meas[0];
39. measure eval[1] -> meas[1];
40. measure eval[2] -> meas[2];
41. measure eval[3] -> meas[3];
42. measure q[0] -> meas[4];
```

Ground Truth Description

AE aims to find an estimation for the amplitude of a certain quantum state.

1. Run 1 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1EtzTKCIWeqWLb9v6547SWTlrtpjQjO/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

2. Run 1 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1EtDfdAZUZChUYMPiMkCzNICV9xMldl5x/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

3. Run 1 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1EpnitqwgznXwiceAao6jg2x8oQA0iYk1/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

4. Run 1 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1EpiuI95BVMnHwBzK3VlIMkcQiAV-EB7m/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

5. Run 1 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1EhuEvZ7oyaVdHTwHVqj66dYcjpJcury4/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

6. Run 1 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1EgwpnYjAxBOtH24Bfuxt_NlsTr_T3k_L/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

7. Run 2 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1Eg29lETGUTDITy1fLZSEY71YkFSQwigp/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

8. Run 2 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1EfGhqlyxWwShsvw6de9fUsEfZF_aMCv4/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

9. Run 2 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1EZHGgkGQ9Cy8T6F-Q-7nrrAwkYJm9BB/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

10. Run 2 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1EXgJNa3djzIROo7cxoD2LrfzQPuzOwWF/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

11. Run 2 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1EX7GdFg6aUsntRDHb2zVq1FSC0hu6X88/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

12. Run 2 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1EW4Rp_SFUrLEenSGrFte3_8HIRCwCYFs/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

13. Run 3 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/13552PgOBz3knbW4C1BvKrP_JoLG9u4nK/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

14. Run 3 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/131LMMpN7SvX4soFIOAf9DdrTvcITxEVc/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

15. Run 3 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1311Hd2rsG8o_EC5MtcxgUFamzQfXUoO/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

16. Run 3 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/12zafxKWm1v6ODCLHebumJ760uQUGkBWw/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

17. Run 3 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/12v2ZGu-zzLVs0OeUZu_aMqg3h2dpWG7Y/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

18. Run 3 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/12wwyemUgF23lB4RSvM5uuAKNbcmtCfkd/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

Deutsch-Jozsa

Algorithm Code

```
1. OPENQASM 2.0;
2. include "qelib1.inc";
3. qreg q[10];
4. creg c[9];
5. u2(0,0) q[0];
6. u2(0,0) q[1];
7. h q[2];
8. u2(0,0) q[3];
9. h q[4];
10. u2(0,0) q[5];
11. u2(0,0) q[6];
12. h q[7];
13. u2(0,0) q[8];
14. u2(-pi,-pi) q[9];
15. cx q[0],q[9];
16. u2(-pi,-pi) q[0];
17. cx q[1],q[9];
18. u2(-pi,-pi) q[1];
19. cx q[2],q[9];
20. h q[2];
21. cx q[3],q[9];
22. u2(-pi,-pi) q[3];
23. cx q[4],q[9];
24. h q[4];
25. cx q[5],q[9];
26. u2(-pi,-pi) q[5];
27. cx q[6],q[9];
28. u2(-pi,-pi) q[6];
29. cx q[7],q[9];
30. h q[7];
31. cx q[8],q[9];
32. u2(-pi,-pi) q[8];
33. barrier q[0],q[1],q[2],q[3],q[4],q[5],q[6],q[7],q[8],q[9];
34. measure q[0] -> c[0];
35. measure q[1] -> c[1];
36. measure q[2] -> c[2];
37. measure q[3] -> c[3];
38. measure q[4] -> c[4];
39. measure q[5] -> c[5];
40. measure q[6] -> c[6];
41. measure q[7] -> c[7];
42. measure q[8] -> c[8];
```

Ground Truth Description

This algorithm determines, whether an unknown oracle mapping input values either to 0 or 1 is constant (always output 1 or always 0) or balanced (both outputs are equally likely).

19. Run 1 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/15tWa6CEQWbSNRRTNXJcqGbgKVbWjjwZg/view?usp=drive_link

1

2

3

4

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Wrong Explanation

Perfect Explanation

20. Run 1 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/15si5Ly6_wUkyaVRAyywRBPctkfnWsyJ/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

21. Run 1 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/15ppngVWtffNWNwtRTmhMyallPI6oC0wz/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

22. Run 1 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/15okA7xPVHcj4sB0oulXZ5aL3dDRO09OX/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

23. Run 1 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/15k-vijnlFQ2nl5lmWBG1rl196nHH_xiK/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

24. Run 1 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/15fsfD81BgmBhVy3h6CiyOzINUhK37BNT/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

25. Run 2 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/15flk9QhVhlmhnuZ0F3f-OVhlapRyrFbm/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

26. Run 2 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/15bgQVBV9BV3HxI3e19EW-WFFEpxzbuqi/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

27. Run 2 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/15HvXtDITtWt9vzF32pXDawnCay3ss0Ai/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

28. Run 2 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/15FtvXNdVmOgl5c_Jz_spxv9gu05Kqa2/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

29. Run 2 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/15EbHXeMCIVDHk9toulwxY4BZrl20VwZ/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

30. Run 2 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/15DgKpwDyuezq4xAp8sHJMtwfRoczHTkE/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

31. Run 3 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/159Z_ZZlrB5-2hPciEPU1NXxBdgcCaUPh/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

32. Run 3 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/158b6KUzZeLpy/b0Gnu3S_vekx59Jtn5h/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

33. Run 3 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/153Tn0aJPszjhwtc6Ra6LlqmL4vvlBzX4/view?usp=drive_link

1

2

3

4

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Wrong Explanation

Perfect Explanation

34. Run 3 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/16cK9CFFsCVk98p4ctMfEBej055VKinil/view?usp=drive_link

1

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Wrong Explanation

Perfect Explanation

35. Run 3 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/16aQOXu1iHkXRqePniEizf9XxVtFQj6rH/view?usp=drive_link

1

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3

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Wrong Explanation

Perfect Explanation

36. Run 3 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/16ZM_sXY5YD1kL8ZTA0oGjLxpc5azXUyj/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

Grover

Algorithm Code

```
1. OPENQASM 2.0;
2. include "qelib1.inc";
3. qreg q[2];
4. qreg flag[1];
5. creg meas[3];
6. h q[0];
7. h q[1];
8. x flag[0];
9. cp(pi/2) q[1],flag[0];
10. cx q[1],q[0];
11. cp(-pi/2) q[0],flag[0];
12. cx q[1],q[0];
13. cp(pi/2) q[0],flag[0];
14. u2(0,0) q[0];
15. u1(-pi) q[1];
16. cx q[0],q[1];
17. u2(-pi,-pi) q[0];
18. u1(-pi) q[1];
19. barrier q[0],q[1],flag[0];
20. measure q[0] -> meas[0];
21. measure q[1] -> meas[1];
22. measure flag[0] -> meas[2];
```

Ground Truth Description

One of the most famous quantum algorithm known so far, Grover's algorithm finds a certain goal quantum state determined by an oracle. In our case, the oracle is implemented by a multi-controlled Toffoli gate over all input qubits. In this no ancilla version, no ancilla qubits are used during its realization.

37. Run 1 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/16VUxl2A_2w0FvnupqmRrZQj37Gj6l-KS/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

38. Run 1 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/16LsybR4mcbbaabUA2eYmuM36DKRvH7Gm/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

39. Run 1 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/16LG9wg90DHbTXArLECq0iQJFMamels8D/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

40. Run 1 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/16J9bQdbBYOupWYCvkrd0XB2AFBAN8cWr/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

41. Run 1 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/16EHXh9njtdQg2rQysNq3QwkH1sjauVX7/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

42. Run 1 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/16C7nyuxPRkD7Yhe5r3S4JvdtbMgQ1ZWf/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

43. Run 2 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/16BwGT5iEkZkYBiITEjglapVQDJUItYK/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

44. Run 2 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/161-vHIL4aO-G7MVkF5AGZSdwgEVr_xVg/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

45. Run 2 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/160qSBpa8H7hZjpC4cQpmMoz_CjB3EIUc/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

46. Run 2 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/14bsBm4fOxIFM9uLTPhv-l2fkFi8WgzeY/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

47. Run 2 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/14b_gYWixRpdFAfwkWE9txpvgAsW3bITo/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

48. Run 2 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/14YpQxxm81cUbfbATDHJOv8clFGG8MieJ/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

49. Run 3 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/14Y7DP-Yzjy3EMiGw0eOPKcgqApmNM5/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

50. Run 3 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/14X_RW6tQMLf-cAE7b53QOydGs4PP-Xtl/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

51. Run 3 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/14Voo_VRxGnsHE1f9Up2aN_lbV1x-Uayj/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

52. Run 3 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/14P5mONAotxAfGIng7xzSVqHGzPTUftUg/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

53. Run 3 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/14IPpfNeP0VDq7koWxgDW9k2wZcCqsb1P/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

54. Run 3 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/149KNxfHSC9rCZpINTRZ-v3Rrc4bPBONY/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

Quantum Fourier Transform

Algorithm Code

```
1. OPENQASM 2.0;
2. include "qelib1.inc";
3. qreg q[10];
4. creg c[10];
5. creg meas[10];
6. h q[9];
7. cp(pi/2) q[9],q[8];
8. h q[8];
9. cp(pi/4) q[9],q[7];
10. cp(pi/2) q[8],q[7];
11. h q[7];
12. cp(pi/8) q[9],q[6];
13. cp(pi/4) q[8],q[6];
14. cp(pi/2) q[7],q[6];
15. h q[6];
16. cp(pi/16) q[9],q[5];
17. cp(pi/8) q[8],q[5];
18. cp(pi/4) q[7],q[5];
19. cp(pi/2) q[6],q[5];
20. h q[5];
21. cp(pi/32) q[9],q[4];
22. cp(pi/16) q[8],q[4];
23. cp(pi/8) q[7],q[4];
24. cp(pi/4) q[6],q[4];
25. cp(pi/2) q[5],q[4];
26. h q[4];
27. cp(pi/64) q[9],q[3];
28. cp(pi/32) q[8],q[3];
29. cp(pi/16) q[7],q[3];
30. cp(pi/8) q[6],q[3];
31. cp(pi/4) q[5],q[3];
32. cp(pi/2) q[4],q[3];
33. h q[3];
34. cp(pi/128) q[9],q[2];
35. cp(pi/64) q[8],q[2];
36. cp(pi/32) q[7],q[2];
37. cp(pi/16) q[6],q[2];
38. cp(pi/8) q[5],q[2];
39. cp(pi/4) q[4],q[2];
40. cp(pi/2) q[3],q[2];
41. h q[2];
42. cp(pi/256) q[9],q[1];
43. cp(pi/128) q[8],q[1];
44. cp(pi/64) q[7],q[1];
45. cp(pi/32) q[6],q[1];
46. cp(pi/16) q[5],q[1];
47. cp(pi/8) q[4],q[1];
48. cp(pi/4) q[3],q[1];
49. cp(pi/2) q[2],q[1];
50. h q[1];
51. cp(pi/512) q[9],q[0];
52. cp(pi/256) q[8],q[0];
53. cp(pi/128) q[7],q[0];
54. cp(pi/64) q[6],q[0];
55. cp(pi/32) q[5],q[0];
56. cp(pi/16) q[4],q[0];
57. cp(pi/8) q[3],q[0];
58. cp(pi/4) q[2],q[0];
59. cp(pi/2) q[1],q[0];
60. h q[0];
61. swap q[0],q[9];
62. swap q[1],q[8];
63. swap q[2],q[7];
64. swap q[3],q[6];
65. swap q[4],q[5];
66. barrier q[0],q[1],q[2],q[3],q[4],q[5],q[6],q[7],q[8],q[9];
67. measure q[0] -> meas[0];
68. measure q[1] -> meas[1];
69. measure q[2] -> meas[2];
70. measure q[3] -> meas[3];
71. measure q[4] -> meas[4];
72. measure q[5] -> meas[5];
73. measure q[6] -> meas[6];
74. measure q[7] -> meas[7];
75. measure q[8] -> meas[8];
76. measure q[9] -> meas[9];
```

```
/2. measure q[5] -> meas[5];
73. measure q[6] -> meas[6];
74. measure q[7] -> meas[7];
75. measure q[8] -> meas[8];
76. measure q[9] -> meas[9];
```

Ground Truth Description

QFT embodies the quantum equivalent of the discrete Fourier transform and is a very important building block in many quantum algorithms.

55. Run 1 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/19sEFrT52Bh7JoJzWq5aRBqFVHlijfU9N/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

56. Run 1 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/19ca1FckMQf3aFjDoBMyJ-c00aGrHV66/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

57. Run 1 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/19bbETjs41-SZZqsnTC8VtQ2jHQZ36rH8/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

58. Run 1 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/19ZSUTLo0lwnRJb2rb3kDwg2lFfY1bHp9/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

59. Run 1 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/19YiFKTjJQepYvXkL6KX0knXU7yG1u0Y0/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

60. Run 1 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/19WQ1pWAggEcEGqw48Xuxdi7ymhddrqaj/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

61. Run 2 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/19UYZlIKpaX5gzO5ysgk5p1L0l0RTRxN/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

62. Run 2 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/19KwPtrTkRBBLcRn_CMwr--qnB0wNyBBx/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

63. Run 2 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/19KrzuOjWt2mnE1dtmUsbpwoNZBKSDPnD/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

64. Run 2 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/19Izu0DWFcmDi_owlpH5FkAveN6vGiN-H/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

65. Run 2 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/19Gvp1aqjC4yBPFwj31Up69n49dTIA/q1/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

66. Run 2 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/19G0A4pYRW7hkcT4y_7GIJozLrQhxKBeB/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

67. Run 3 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/19E_E8FdSEoTuYFSHANKxqAO-xVsI9Y1r/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

68. Run 3 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/192y1jCS625T7tj5-jC9itXZ1SXsONtdw/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

69. Run 3 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/192e3V2MFmzQQOnoHkpOceQWYwjFXwr9A/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

70. Run 3 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/191kw7TxfyyGqTBQKIsiyRH68GBGsrM/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

71. Run 3 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/19-meyHdFdZTiyoKhr0wVgCDY6V2urXx0/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

72. Run 3 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/18yT34YEyA-vUvK98FHK33FySSfcStOFO/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

Quantum Fourier Transform with entanglement

Algorithm Code

```
1. OPENQASM 2.0;
2. include "qelib1.inc";
3. qreg q[5];
4. creg meas[5];
5. h q[4];
6. cx q[4],q[3];
7. cx q[3],q[2];
8. cx q[2],q[1];
9. cx q[1],q[0];
10. h q[4];
11. cp(pi/2) q[4],q[3];
12. h q[3];
13. cp(pi/4) q[4],q[2];
14. cp(pi/2) q[3],q[2];
15. h q[2];
16. cp(pi/8) q[4],q[1];
17. cp(pi/4) q[3],q[1];
18. cp(pi/2) q[2],q[1];
19. h q[1];
20. cp(pi/16) q[4],q[0];
21. cp(pi/8) q[3],q[0];
22. cp(pi/4) q[2],q[0];
23. cp(pi/2) q[1],q[0];
24. h q[0];
25. swap q[0],q[4];
26. swap q[1],q[3];
27. barrier q[0],q[1],q[2],q[3],q[4];
28. measure q[0] -> meas[0];
29. measure q[1] -> meas[1];
30. measure q[2] -> meas[2];
31. measure q[3] -> meas[3];
32. measure q[4] -> meas[4];
```

Ground Truth Description

This algorithm applies regular QFT to entangled qubits.

73. Run 1 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/181uksLHJngMldhug2Mc76ewt4JKO7C3j/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

74. Run 1 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/17v69CMdyG8ERfBGC3ignVtMPb4XwCBly/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

75. Run 1 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/17v69CMdyG8ERfBGC3ignVtMPb4XwCBly/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

76. Run 1 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/17rE-GWyxDXUl8sdMS3PS2PW3xSw-kTyn/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

77. Run 1 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/17nwu48S71TNljYlsYgywErqNbGyG-Gn/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

78. Run 1 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/17maLWlpy_it56PX8LULy34W-ZdyJ_a5/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

79. Run 2 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/17iqAiYp_jkMbRNDXBwa95674vbH5FZPq/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

80. Run 2 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/17f78zj7Xxhasee2XofPbqURkp-ocqhDE/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

81. Run 2 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/17avI6uhKbs0GIU13jhd8Xbbt6TZYCiOa/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

82. Run 2 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/17_agQJmDZL21jVvtwSScsiy3ERfury/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

83. Run 2 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/17VFyg8mCAnvmbbyz-qVf7_2EwQNEe2n1/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

84. Run 2 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/17SweglnLNxquSXbxsGNXFbG1JMOK3YEx/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

85. Run 3 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/17NQOwl_8UeUEoAvQwO5Xr9omTMDuTyw_/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

86. Run 3 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/17CXQOf66V4hZJrYXtUNMXcUAYW/5TY6f/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

87. Run 3 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/172sURi566Fh6dIF93luJEysZb-vXVh/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

88. Run 3 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/16zIHpAJ3RQT313cHrrZ9iqTm0YLQ9H5S/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

89. Run 3 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/16xPI2l_8n9zEPcDirid3DpT2L7vI3s5a/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

90. Run 3 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/16v1d8A7qI9WaA1bv/pwo5ac26UPoz2VM/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

Quantum Phase Estimation

Algorithm Code

```
1. OPENQASM 2.0;
2. include "qelib1.inc";
3. qreg q[4];
4. qreg psi[1];
5. creg c[4];
6. h q[0];
7. h q[1];
8. h q[2];
9. h q[3];
10. x psi[0];
11. cp(-7*pi/8) psi[0],q[0];
12. cp(pi/4) psi[0],q[1];
13. cp(pi/2) psi[0],q[2];
14. swap q[1],q[2];
15. cp(pi) psi[0],q[3];
16. swap q[0],q[3];
17. h q[0];
18. cp(-pi/2) q[1],q[0];
19. h q[1];
20. cp(-pi/4) q[2],q[0];
21. cp(-pi/2) q[2],q[1];
22. h q[2];
23. cp(-pi/8) q[3],q[0];
24. cp(-pi/4) q[3],q[1];
25. cp(-pi/2) q[3],q[2];
26. h q[3];
27. barrier q[0],q[1],q[2],q[3],psi[0];
28. measure q[0] -> c[0];
29. measure q[1] -> c[1];
30. measure q[2] -> c[2];
31. measure q[3] -> c[3];
```

Ground Truth Description

QPE estimates the phase of a quantum operation and is a very important building block in many quantum algorithms. In the exact case, the applied phase is exactly representable by the number of qubits.

91. Run 1 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1BoS3eU0YLHVDTIK6WDAYmai776def9Sz/view?usp=drive_link

☐☐☐☐☐

Wrong Explanation

Perfect Explanation

92. Run 1 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1BdjogPV984Ed_lO5Q7uEVJFJykdqG8U9/view?usp=drive_link

☐☐☐☐☐

Wrong Explanation

Perfect Explanation

93. Run 1 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1BddjZC6sroB8Jyw-hPQ6Wj0EGEFTXCS5/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

94. Run 1 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1BUaGlrmN8x1jqxnEKv9nv49VA5pdga6/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

95. Run 1 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1BRzxU-SNQkuwxkc9FmdmGQHJobhXUjZn/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

96. Run 1 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1BP_NJqiT0OTWTlmcE41GM5cJrs2bbac8/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

97. Run 2 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1BH_oJ_aG43X9DHggMN87lx8dgYJ1I7vn/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

98. Run 2 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1BHJTNjDQp2-9_taJP1JNiYa2FUIP9yF6/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

99. Run 2 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1BDhTQgLG2wIkAwzWFCP5QuuQJfPjC-5Q/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

100. Run 2 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1B8CI-ShbTvbzw_zkssEYiDV0-KxuZCCN/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

101. Run 2 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1B5Y8zpnYU0bZjLAMfS8Q-7ePKEfhHqO/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

102. Run 2 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1B5So25nhAb8BB7xSRVyH281qCR7G11yo/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

103. Run 3 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1AxXRC-yUD3PLzphi63ZTADJbfw5V5PDa/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

104. Run 3 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1AryQaltPetB8enpSLKcZRKNCMZfITZhg/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

105. Run 3 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1AmntVkuYjslWKmbPjGaFz3sPcQUSEvLo/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

106. Run 3 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1AhrFdZEbXjriyif2KmbuRjLsVNO6Tzzc/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

107. Run 3 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1AhO9UO-IVhf4mqLxjD2S_TpBI57KahTw/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

108. Run 3 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1Afj6BCWD9Gmv-qNX3DCD4lgafeAkOXv_/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

Quantum walk

Algorithm Code

```
1. OPENQASM 2.0;
2. include "qelib1.inc";
3. qreg node[2];
4. qreg coin[1];
5. creg meas[3];
6. h coin[0];
7. ccx coin[0],node[1],node[0];
8. cx coin[0],node[1];
9. x node[1];
10. x coin[0];
11. ccx coin[0],node[1],node[0];
12. cx coin[0],node[1];
13. x node[1];
14. u2(-pi,-pi) coin[0];
15. ccx coin[0],node[1],node[0];
16. cx coin[0],node[1];
17. x node[1];
18. x coin[0];
19. ccx coin[0],node[1],node[0];
20. cx coin[0],node[1];
21. x node[1];
22. u2(-pi,-pi) coin[0];
23. ccx coin[0],node[1],node[0];
24. cx coin[0],node[1];
25. x node[1];
26. x coin[0];
27. ccx coin[0],node[1],node[0];
28. cx coin[0],node[1];
29. x node[1];
30. x coin[0];
31. barrier node[0],node[1],coin[0];
32. measure node[0] -> meas[0];
33. measure node[1] -> meas[1];
34. measure coin[0] -> meas[2];
```

Ground Truth Description

Quantum walks are the quantum equivalent to classical random walks. In this no ancilla version, no ancilla qubits are used during its realization.

109. Run 1 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1Kz-li10SSV7MJfeQ3tslFCTY2zoLDtcb/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

110. Run 1 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1Kr-gMpKdzB7-Raqlvd-vL1u0nWCeS36b/view?usp=drive_link

1

2

3

4

5

Wrong Explanation

Perfect Explanation

111. Run 1 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1Kn2KrB6RWf-31XEZ8Tsn1ic7KGKub8UE/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

112. Run 1 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1KjlHWFuMMdP1iRj56qQ7pBv0rJUgHfq/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

113. Run 1 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1KixITCoGqntbNIW-63lntnwYGLRiXqg/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

114. Run 1 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1KhoDMpz_VWsj-3TC5LgODYuixZ-P8fAZ/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

115. Run 2 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1Kfqj3L8B8cZ4GPsyLbbsiL5Z0cKkgi8B/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

116. Run 2 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1KaBxBY_KEXAqOs9misxHdNp7NtMgJgD/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

117. Run 2 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1K_vlQz7sHh66-HsGBfAlKaMq6sh1oiYb/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

118. Run 2 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1K_LdlOY_oCklvOmBtl3EKhZeIWOUZ0n/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

119. Run 2 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1KXvYjbK8JVlcWlaI2wMFNXlEHxdIW4cCL/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

120. Run 2 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1KVsy5kpRdQm8dUQM4WHfs9QWuEmDHtg7/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

121. Run 3 - First Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1KVWGLuthMCs8X4jps5AZfPThFZ-viZp3/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

122. Run 3 - First Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1KF5d6suKXh-0VXr1GgGRvDrMGXTwPKb/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

123. Run 3 - First Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1KCvtG2YPCt8KbEYJvy78nx9tyjghW1Y/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

124. Run 3 - Second Prompt - A *

Link to the explanation: https://drive.google.com/file/d/1KA-RAZmbXqGhC1S5XpKlrgTuEAuTyLN8/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

125. Run 3 - Second Prompt - B *

Link to the explanation: https://drive.google.com/file/d/1K7oWs7XahJ_MUEfd-GNCc1bSfBB9mVXi/view?usp=drive_link

1	2	3	4	5
---	---	---	---	---

Wrong Explanation

Perfect Explanation

126. Run 3 - Second Prompt - C *

Link to the explanation: https://drive.google.com/file/d/1K7oRrX_GS1iXRjpmuze-jZ9KLL-9djuY/view?usp=drive_link

1	2	3	4	5
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Wrong Explanation

Perfect Explanation

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