Variable, Arithmetic, Logical, Assignment, and Comparison Operators
Instructions:
For each of the following code snippets, trace the values of the variables and determine the final output of each snippet. Write down your answers.

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1. Arithmetic and Variable Assignment

```
x = 10
y = 5
z = x + y * 2
x += y - 3
```

2. Comparison and Logical Operators

```
a = 7
b = 14
c = a * 2
result = c == b and a < b
```

3. Complex Arithmetic

```
x = 4
y = 8
z = (x + y) * 2 - 10
```

4. Chained Comparison

```
a = 6
b = 10
check = 5 < a < b < 15
```

5. Logical and Arithmetic Combined

```
x = 12
y = 7
z = x // y + 3 > 4 or x % y == 0
```

6. Arithmetic and Logical Operators

```
a = 10
```

```
b = 20
result = (a + b) > 25 and b - a == 10
```

7. Multiple Assignments

```
x = 9
y = 3
z = x * y - 2
x = z // y + 1
```

8. Logical with Assignment

```
a = 8
b = 12
check = a != b and (a + 2 > b or b - 4 < a)
```

9. Nested Arithmetic

```
x = 7
y = 14
z = (x * 2 + y) // 3
```

10. Logical with Comparisons

```
a = 3
b = 9
c = (a * 3 == b) or (b // 3 == a)
```

11. Arithmetic and Assignment

```
x = 10
x *= 2 + 3
y = x - 5
```

12. Multiple Conditions

```
a = 15
b = 10
c = 20
check = a < b or (c - b == 10 and a + b > 20)
```

13. Chained Comparisons

```
x = 5
y = 10
z = 15
result = 4 < x <= y <= z > 12
```

14. Assignment and Logical

```
a = 11
b = 2
a //= b
check = a == 5 or a < 5 and b > 1
```

15. Arithmetic, Assignment, and Logical

```
x = 8
y = 3
x += y * 2
z = (x - y) > 10
```

16. Nested Comparisons

```
a = 7
b = 14
c = 21
result = (a * 3 == b * 2) and (c > b + a)
```

17. Logical and Arithmetic

```
x = 16
y = 4
check = (x // y == 4) and (x % y == 0) or y == 5
```

18. Variable Updates

```
a = 3
b = 12
a += 2
b -= 4
result = a * b
```

19. Logical and Assignment

```
x = 5
y = 10
x *= y // 2
check = x == 25 or y == 10
```

20. Arithmetic and Logical Operators

```
a = 18
b = 3
c = 24
result = (a // b > 5) and (c % b == 0)
```

21. Variable Swapping

```
a = 5
b = 8
a, b = b, a
c = a + b
```

22. Comparison and Logical

```
x = 7
y = 14
z = 21
check = (x * 3 == z) and (y // 2 == x)
```

23. Multiple Assignments

```
a = 4
b = 16
```

```
c = 20
a += b // 4
c -= a
```

24. Arithmetic and Logical

```
x = 30
y = 15
result = (x / y == 2) and (x % y == 0)
```

25. Nested Operations

```
a = 9
b = 27
c = (a + b) // 3 - 2
```

26. Arithmetic and Logical

```
x = 11
y = 22
check = (x * 2 == y) and (y / 2 == x)
```

27. Comparison and Logical

```
a = 13
b = 26
result = (a * 2 == b) or (b / a == 2)
```

28. Logical with Assignment

```
x = 8
y = 5
```

```
x -= y * 2
check = x < 0 or y == 5
```

29. Arithmetic, Assignment, and Logical

```
a = 20
b = 4
a //= b
result = (a == 5) and (b % 2 == 0)
```

30. Logical and Comparison

```
x = 6
y = 12
z = 18
check = (x * 3 == z) and (y // x == 2)
```