Class 9
Computer Applications(2026-27)
Chapter: 5
Operators In Java
(Solutions are below the questions)

Unsolved Questions

✅ A. Tick (✓) the correct answer

1. What values will be stored in x and y respectively?

```
int x = 10, y; y = -x;
```

a. x = -11 and y = -11
b. x = 10 and y = -10
c. x = 11 and y = 11
d. x = -11 and y = 11

Answer: b. x = 10 and y = -10 ✅
Explanation: x remains 10, y becomes -10.

2. If m = 50, n = 5, then n % m is _____.

a. 5
b. 10
c. 0
d. 1

Answer: a. 5 ✅
Explanation: 5 % 50 = 5

3. "Change after action" is example of _____.

a. Prefix operator
b. Postfix operator
c. Binary operator
d. Assignment operator

Answer: b. Postfix operator ✅

4. Operators that contains one operand or expression _____.

a. Unary operator
b. Ternary operator
c. Binary operator
d. Null operator

Answer: a. Unary operator ✓

5. Which operator is used to initialize non-primitive data types?

a. . (dot operator)
b. Ternary operator
c. New operator
d. Relational

Answer: c. New operator ✓

6. What is result of a += 9 ?

a. ++a
b. a = a + 9
c. a + 9
d. None

Answer: b. a = a + 9 ✓

7. If a = 5, b = 4, c = 0; find c = a % ++b;

a. 5.0
b. 5
c. 0
d. None

Answer: c. 0 ✓
Explanation: ++b → b = 5 → 5 % 5 = 0

8. Output of ++a + ++a; when a = -1

a. -1
b. 0
c. 1
d. None

Answer: c. 1 ✓

9. Correct Java expression for p = a^2 + bc

a. p = a * a + b * c
b. p = axa + bxc
c. p = a.a + b.c
d. None

Answer: a. p = a * a + b * c ✓

10. Shorthand operator to decrease by 3

a. a++
b. a -= 3
c. a += 3
d. a = 3

Answer: b. a -= 3 ✓

11. Correct statement about print and println

a. print prints newline
b. println prints space
c. print does not print newline
d. println only prints integers

Answer: c. print does not print newline ✓

12. Output of code:

```
System.out.println("A");
System.out.println("B");
System.out.println("C");
```

a. ABC
b. A B C
c. AB
d. A, B, C

Answer: b. A B C (each on new line) ✓

13. Difference between prefix and postfix increment

a. Prefix increments before use
b. Postfix increments after use
c. Both
d. None

Answer: c. Both ✓

14. int a = 7; int b = a++; values?

a. a = 6, b = 7
b. a = 7, b = 8
c. a = 7, b = 7
d. a = 8, b = 7

Answer: d. a = 8, b = 7 ✓

15. Postfix decrement operator statement

a. decreases by 2
b. decreases before use
c. decreases after use
d. no change

Answer: c. decreases after use ✓

✓ B. Fill in the blanks

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1. _____ are used to instruct compiler to execute operations.

Answer: Operators

2. _____ operator is used to access members of class.

Answer: dot operator

3. _____ operator is used to create objects.

Answer: new

4. Output of logical operator is in _____ form.

Answer: boolean

5. Counters increases by _____ and accumulator increases by _____.

Answer: 1, value

✓ C. Answer the following questions

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1. Output:

- r = m++ / ++n
- r = ++m + ++n - n++

☞ Solve stepwise (student explanation needed)

2. Explain Arithmetic operators

Answer: Used for calculations (+, -, *, /, %)

3. Evaluate:

- A = 3 + 2 × 4 = **11**
- B = 22 / 2 + 4 = **15**

4. Output:

- a = ++a + ++a → evaluated stepwise
- i *= j + % j → apply precedence

5. Operators:

a. ~ → Bitwise NOT
b. ++ → Increment
c. && → Logical AND

✓ D. Picture Study

---

1. > and < are _____ operators

a. Logical
b. Relational
c. Assignment
d. Conditional

Answer: b. Relational ✓

2. ! operator is _____

a. Relational
b. Not (Logical)
c. And
d. Assignment

Answer: b. Not (Logical) ✓

3. Output:

```
System.out.println(x == 7);
```

Answer: true (if x = 7) ✓

4. Ternary operator is also called _____

a. Relational
b. Arithmetic
c. Conditional
d. Logical

Answer: c. Conditional ✓

5. Operator checking condition is _____

a. Relational
b. Logical
c. Conditional
d. Arithmetic

Answer: a. Relational ✓

✓ E. Case Study

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1. a + b * c → first operation?

a. Addition
b. Multiplication
c. Addition first
d. Simultaneous

Answer: b. Multiplication ✓

2. Operator with left-to-right associativity

a. *
b. =
c. ?:
d. ++

Answer: a. * ✓

3. x = a - b + c evaluation

a. c added first
b. b subtracted then c added
c. precedence only
d. right to left

Answer: b. b subtracted then c added ✅

4. Right-to-left associativity operator

a. +
b. &&
c. =
d. -

Answer: c. = ✅

5. a + b * c first executed

Answer: Multiplication ✅

✅ F. Assertion & Reasoning

1.

Assertion: OR evaluates both operands ❌
Reason: OR returns true if one is true ✓

Answer: d. A is false, R is true ✅

2.

Assertion: ?: has higher precedence than = ✓
Reason: Higher precedence executes first ✓

Answer: a. Both true and correct explanation ✅

Class 9
Computer Applications(2025-26)
Chapter: 5
Operators In Java
(Solutions are below the questions)

Unsolved Questions

A. Tick (✓) the correct answer

1. What values will be stored in x and y respectively after executing the following?

```
int x = -10;
y = --x;
```

a. x = -11, y = -11
b. x = -10, y = -10
c. x = 11, y = 11
d. x = -11, y = 11

---

2. If `m = 50` and `n = 5` then `n % 2 =?`
   a. 5
   b. 10
   c. 0
   d. None of these

---

3. "Change after action" is the example of
   a. Prefix operator
   b. Postfix operator
   c. Binary operator
   d. None of these

---

4. Operators that contain one operand or expression:
   a. Unary operator
   b. Ternary operator
   c. Binary operator
   d. None of these

---

5. Which of the following operators is used to initialise all non-primitive data types?
   a. .(dot) operator
   b. Ternary operator
   c. New operator
   d. Relational

---

6. What is the result of `a += 9;` statement?
   a. ++a
   b. a = a + 9
   c. a + 9
   d. None of these

---

7. If `int a = 5, b = 4, c = 0;` what value is stored in `c`, when `c = a % ++b;`?
   a. 5.0
   b. 5
   c. 0
   d. None of these

---

8. What will be the output of `++a+ ++a;` when `int a = -1`?
   a. -1
   b. 0
   c. 1
   d. None of these

---

9. What is the correct Java expression for the statement $p = a^2 + bc$?
   a. p = a*a + *b*c;*
   b. p = axa + bxc;
   c. p = a.a + b.c;
   d. None of these

---

10. The operators that deal with two operands are known as:
    a. Unary
    b. Binary

c. Ternary
d. None of these

B. Fill in the blanks

1. Arrange these operators (<, ++, +, *) in order of higher precedence to lower precedence: _____
2. Write the Java expression of a^2+b^2+2ab: _____
3. Write the output of the expression `a + =a++ + a % a`, where a = 5: _____
4. The output of Logical Operator is in _____form.
5. Counters increase by _____ and in accumulator, the increment value is _____for each recurrence of the loop.

C. Short Answer Questions

1. What is the output of the following expressions if executed sequentially, if m = 15, n = 5:

- `r = m++ / ++n`
- `r = ++m + ++n - n++`

2. What are the Arithmetic operators?

---

3. Write the Java Expression of the following mathematical expressions:
   a. A = (B + C)/2 * h
   b. V = π * r^2 * h

---

4. Give the output of the following expression

- `a = ++a + a - ++a - a;` when a = 2:
- `i *= j++ % j - k * 10;`
  when i = 2, j = 4, k = 3.

---

5. Name the operators listed below:
   (i) <
   (ii) `&&`
   (iii) `++`
   `(iv) ?:`

---

6. Write the output of the following code:

```
char ch = 'F';
int m = ch;
m = m + 5;
System.out.println(m + "" + ch);
```

---

7. What is meant by precedence of operators?

---

8. Differentiate between the following:
   a. Arithmetical operator and Logical operator
   b. Logical AND and Logical OR

---

9. Define Postfix Increment Operator.

---

10. What will be the output of the following code?

```
int m = 2, n = 15;
for(int i = 1; i < 5; i++) {
    m++;
    n--;
}
System.out.println("m=" + m);
System.out.println("n=" + n);
```

✦✦✦ End of Worksheet ✦✦✦

Solutions – Operators (Class 9)

A. Tick (✓) the correct answer

1. int x = -10;
y = --x;
int x = -10; → so x = -10.

--x → pre-decrement, so x becomes -11 first, then the value -11 is assigned to y.

✓ Final values: x = -11, y = -11

Correct answer: a. x = -11, y = -11

---

2. If m = 50 and n = 5 → `n % 2 = 5 % 2 = 1`.
   But options are (5, 10, 0, None). Correct = **None of these** ✓

---

3. `"Change after action"` → **Postfix operator** ✓

---

4. One operand only → **Unary operator** ✓

---

5. To initialize objects (non-primitive) → **new operator** ✓

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6. `a += 9;` means `a = a + 9`. ✓

7.

```
int a = 5, b = 4, c = 0;
c = a % ++b;
```

Here `++b = 5`, so `c = 5 % 5 = 0`.
Answer: **0** ✓

8.

```
int a = -1;
++a + ++a;
```

Step 1: `++a` → `a = 0`, gives 0.
Step 2: `++a` → `a = 1`, gives 1.
So total = 0 + 1 = **1** ✓

---

9. Correct Java expression for p=a2+bcp = a^2 + bcp=a2+bc:
   p = a*a* + *b*c; ✓

---

10. Two operands → **Binary operator** ✓

B. Fill in the blanks

1. Operator precedence: `++ , * , + , <`
2. Java expression: `a*a + b*b + 2*a*b`
3. Expression: `a += a++ + a % a` with a=5 → `a = 5 + (5 + 0)` → 10.
4. Logical operator output is in **boolean** form.
5. Counters increase by **1**, and in accumulator increment value is **variable (as per recurrence)**.

C. Short Answer Questions

1. If m = 15, n = 5:

- `r = m++ / ++n;`
  `m++ = 15`, `++n = 6` → r = 15 / 6 = 2. (Then m=16, n=6).
- `r = ++m + ++n - n++;`
  m=17, n=7 → `r = 17 + 7 - 7 = 17`.
  (After, n=8).

---

2. **Arithmetic operators**: `+ , - , * , / , %`

---

3. Java expressions:
   a. `A = (B + C)/2 * h;`
   b. `V = 3.14 * r*r * h;`

---

4. (i) If a = 2:

```
a = ++a + a - ++a - a;
= (3 + 3 - 4 - 4) = -2
```

(ii) `i *= j++ % j - k * 10;` when i=2, j=4, k=3

- First `j++ % j = 4 % 5 = 4`
- So → `2 * (4 - 30)` = 2 * -26 = -52

5.

(i) < → Relational operator
(ii) `&&` → Logical AND

(iii) `++` → Increment (Unary) operator
(iv) `?:` → Ternary operator

6.

```
char ch = 'F';   // ASCII = 70
int m = ch;      // m = 70
m = m + 5;       // 75
System.out.println(m + "" + ch);
```

Output: **75F**

---

7. **Precedence of operators**: The priority/order in which operators are evaluated in an expression.

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8. Differences:
   a. **Arithmetic**: Perform math (`+,-,*,/,%`).
   Logical: Deal with Boolean (`&&, ||, !`).

b. **Logical AND (&&)**: True only if both conditions true.
Logical OR (||): True if at least one condition true.

---

9. **Postfix Increment Operator**: Variable is incremented **after** its current value is used. Example:

```
int a = 5;
System.out.println(a++); // prints 5, then a becomes 6
```

10.

```
int m = 2, n = 15;
for(int i = 1; i < 5; i++) {
    m++;   // runs 4 times → m = 6
    n--;   // runs 4 times → n = 11
}
System.out.println("m=" + m); // m=6
System.out.println("n=" + n); // n=11
```