

CLASS -10 (2026-27)  
**Mathematical Library Methods**  
CHAPTER 6

**A. Tick (✓) the correct answer**

1. Which of the following is the output of the `Math.pow(Math.sqrt(4), 2)` method?

- a. 2.0
- b. 4.0
- c. 8.0
- d. None of these

**Answer: b. 4.0**

2. How many arguments are required to use the `Math.min()` method?

- a. 1
- b. 2
- c. 3
- d. 4

**Answer: b. 2**

3. How many arguments are required to use the `Math.random()` method?

- a. 0
- b. 1
- c. 2
- d. 3

**Answer: a. 0**

4. The `Math.ceil(Math.max(3.5, 2.3))` method will return \_\_\_\_\_.

- a. 2.0
- b. 3.0
- c. 4.0
- d. 4

**Answer: c. 4.0**

5. Which of the following methods returns the absolute value of a number?

- a. `Math.pow()`
- b. `Math.random()`
- c. `Math.cbrt()`
- d. `Math.abs()`

**Answer: d. `Math.abs()`**

**6. Which type of value is returned by the Math.max() method?**

- a. boolean
- b. double
- c. Depends on the arguments
- d. Both b and c

**Answer:** c. Depends on the arguments

**7. Which of the following type of value is returned by Math.round() method?**

- a. int
- b. double
- c. float
- d. None of these

**Answer:** a. int (for float input; long for double)

**8. What is the output of Math.max(Math.min(4.5, 7.4), 5.3)?**

- a. 7.4
- b. 4.5
- c. 5.3
- d. None of these

**Answer:** c. 5.3

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**9. Which one of these mathematical methods is used to find cosine of an angle given in radians?**

- a. Math.cos()
- b. Math.tan()
- c. Math.sin()
- d. Math.pow()

**Answer:** a. Math.cos()

**10. Which of the following Java expressions represents  $(a^2 + b^3)/(a*b) + \sqrt{a}$  ?**

- a.  $(aa + bbb)/(ab) + \sqrt{a}$
- b.  $(a*a + b*b*b)/(ab) + \sqrt{a}$
- c.  $(a*a + b*b)/(a*b) + \text{Math.sqrt}(a)$
- d.  $(\text{Math.pow}(a,2) + \text{Math.pow}(b,3))/(a*b) + \text{Math.sqrt}(a)$

**Answer:** d.

**11. What does the Math.log() method return?**

- a. Base 10 logarithm
- b. Natural logarithm (base e)

- c. Binary logarithm
- d. Common logarithm

**Answer:** b. Natural logarithm (base e)

**12. Which method is used to generate a random number between 0.0 (inclusive) and 1.0 (exclusive)?**

- a. Math.random()
- b. Math.rand()
- c. Math.randomNumber()
- d. Math.randomize()

**Answer:** a. Math.random()

**13. What is the result of Math.ceil(4.2)?**

- a. 4.0
- b. 4.2
- c. 5.0
- d. 4

**Answer:** c. 5.0

**14. What does the Math.sqrt() method do?**

- a. Returns square
- b. Returns square root
- c. Returns cube
- d. Returns reciprocal

**Answer:** b. Returns the square root

## **B. Fill in the blanks**

**1. \_\_\_\_\_ is the output of Math.max(4,5,5) method.**

**Answer:** 5

**2. The Math.pow(4,2) method will return \_\_\_\_\_.**

**Answer:** 16

**3. The return type of Math.sqrt() method is \_\_\_\_\_.**

**Answer:** double

**4. The result of Math.pow(2,3) + Math.sqrt(4) is \_\_\_\_\_.**

Steps:  
 $2^3 = 8$

$\sqrt{4} = 2$   
Total = 10

**Answer:** 10

**5. The Java expression of  $\sqrt{(a^2 + b^3)}$  is \_\_\_\_\_.**

**Answer:** `Math.sqrt(a*a + b*b*b)`

**6. The Java expression of  $(2abc \times \sqrt{(ab)})$  is \_\_\_\_\_.**

**Answer:** `2*a*b*c * Math.sqrt(a*b)`

**7. The output of `Math.cbrt(27)` is \_\_\_\_\_.**

**Answer:** 3

**8. `Math.round(2.4)` gives \_\_\_\_\_.**

**Answer:** 2

**9. `Math.min(-3.4, -2.3) + Math.max(-3.4, -2.1) =` \_\_\_\_\_**

Steps:  
min = -3.4  
max = -2.1  
sum = -5.5

**Answer:** -5.5

**10. The data type returned by `Math rint()` is \_\_\_\_\_.**

**Answer:** double

## C. Answer the following questions

**1. What do you mean by library methods?**

**Answer:**

Predefined methods provided by Java to perform common tasks.

**2. What are the two types of methods used in Java?**

**Answer:**

1. User-defined methods
2. Library methods

**3. Define the methods `Math.pow()`.**

**Answer:**

Returns value of base raised to power exponent.

#### 4. How many arguments are required for Math.sqrt()?

**Answer:** 1

#### 5. Write Java expression for $A = P(1 + r/n)^{nt}$

**Answer:**

```
A = P * Math.pow((1 + r/n), n*t);
```

#### 6. Write Java program to:

##### (a) Calculate maturity amount

**Answer (code):**

```
A = P * Math.pow((1 + r/n), n*t);
```

##### (b) Surface area of cone

```
Area = Math.PI * r * (r + Math.sqrt(h*h + r*r));
```

##### (c) $r = \sqrt{a^2 + b^2} - \sqrt{c}$

```
r = Math.sqrt(a*a + b*b - Math.sqrt(c));
```

##### (d) Circumference of circle

```
C = 2 * Math.PI * r;
```

##### (e) Population growth

```
P = P0 * Math.pow(e, r*t);
```

## D. Assertion and Reasoning

### 1.

Assertion: Math.pow() calculates power

Reason: Takes base and exponent

**Answer:** a. Both true and correct

### 2.

Assertion: Math.min() returns smallest

Reason: Math.ceil() rounds down

**Answer:** c. A true, R false

## E. Case-based questions

### 1. Which method should be used to find maximum and minimum values?

- a. Math.maximum()
- b. Math.max() and Math.min()
- c. Math.greatest()
- d. Math.value()

**Answer: b.**

## 2. Which method should be used to round up to nearest whole number?

- a. Math.ceil()
- b. Math.floor()
- c. Math.round()
- d. Math.truncate()

**Answer: a.**

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