



Java Primitive Data Types – Practice Problems

Numbers with No Decimals (**byte**, **short**, **int**, **long**)

Beginner

- Age in 10 Years**
Declare an `int age = 25`, then calculate what age will be in 10 years.
- Fit in Byte?**
Declare a `byte` and try to assign 150. Fix the error using the correct type.
- Box Capacity**
Store a total count of 65,000 items. What data type will you use? Declare and print.
- Mobile Data Used**
Store 2 billion mobile data records. Which type fits best? Use `long`.
- Add Two Shorts**
Add two `short` values (e.g., 20,000 and 10,000) and print the result.

Real-World Logic

- Monthly Step Counter**
Store and add the number of steps walked in a week:
`int mon = 5000, tue = 7000...` → total steps?
- Account Balance Overflow**
What happens if you add 2,000,000,000 + 1,000,000,000 in an `int`? Try it.
- Seconds in a Year**
Calculate how many seconds are in 365 days. Use `long`.

Decimal Numbers (**float**, **double**)

Beginner

9. Product Price + Tax

Declare `double price = 199.99; double tax = 0.15;` → print total with tax.

10. Float vs Double Precision

Declare same value in `float` and `double`, print both.

11. Celsius to Fahrenheit

Convert 30°C to Fahrenheit using formula:

`(celsius * 9/5) + 32`

12. Average of 3 Test Scores

Use `double score1 = 85.5;` etc., then compute average.

Real-World Logic

13. Currency Conversion (LKR to USD)

Rate = 1 USD = 310 LKR. Convert 2500 LKR to USD.

14. BMI Calculator

Given `weight = 65.5kg`, `height = 1.7m`, compute `BMI = weight / (height * height)`

15. Fuel Efficiency

Given `distance = 430.0 km` and `fuel = 38.5 L`, calculate km per liter.



Characters (`char`)

Beginner

16. Display Initials

Store your first, middle, and last initials using `char`. Print them.

17. Char to Int

Print the numeric ASCII value of `'A'` using type casting.

18. Is Vowel?

Given a `char letter`, check if it's a vowel (`'a'`, `'e'`, `'i'`, `'o'`, `'u'`).

19. Symbol Display

Assign and print `char symbol = '@';`

Real-World Logic

20. Grading System

Use a `char` to store grade. If `'A'`, print "Excellent", `'B'` = "Good", etc.

21. Uppercase to Lowercase

Given `char upper = 'G';`, convert to lowercase by adding 32 (ASCII trick).

✓ Boolean (`true`, `false`)

Beginner

22. Student Status

Declare `boolean isStudent = true;`. Use `if` to print "You get a discount."

23. Is Number Even?

Given `int number = 8;`, check if it's even using boolean.

24. Password Match

```
String input = "1234", password = "1234"; → boolean isMatch =  
input.equals(password);
```

25. Is Adult?

Check if `int age = 20;` → `boolean isAdult = age >= 18;`

Real-World Logic

26. Online Status

Use `boolean isOnline = false;` → if not online, print "You're offline."

27. Light Switch Simulation

Toggle `boolean isLightOn = false;` → simulate turning on/off

Mixed Type Challenges

28. Declare All Types

Create a program that declares all 8 primitives with values and prints them.

29. Type Conversion Practice

`int num = 150; byte b = (byte) num;` → print both and explain result.

30. Overflow & Underflow Test

Try `byte b = 127 + 1;` and `b = -128 - 1;` → observe what happens.

Bonus Challenge

Simple Tax Calculator

Declare:

- `int income = 65000;`
- `boolean isMarried = false;`
- `double taxRate = isMarried ? 0.15 : 0.20;`
Compute and print tax amount using `double`.