

NAME

DATE

PERIOD

UNIT 1 · TOPIC 1.2 · WORKSHEET

Pick the Right Box

Sort values by type, fill the holes, trace a changing variable, and fix a declaration with one token.

About 30 minutes

10 questions

Cumulative through 1.2

TOPIC

1.2



DIRECTIONS

Work each puzzle in pencil. For code, write exactly what appears on the screen, one line per `System.out.println`. Code shown without a class goes inside `main`. Some puzzles include pieces you won't need.

PART A · 2 QUESTIONS

A

Warm up your brain

1

PENCIL CHECK

Java decides a value's type from how it is written. Write the type of each value: `int`, `double`, `boolean`, or `String`.

Value	Type
42	
3.0	
false	
-8	
0.25	
"true"	

2 YOU'RE THE JVM

You are the computer running this code. Which choice shows what appears on the screen, line by line?

```
int laps = 7;
double miles = 7.0;
boolean done = false;
System.out.println(miles);
System.out.println(laps);
System.out.println(done);
```

A 7.0 / 7 / false

B 7 / 7 / false

C 7 / 7.0 / false

D 7.0 / 7.0 / false



THINK FIRST

A variable gets a new value. Does it keep the old one too, like a stack of sticky notes? Guess in the margin; question 7 settles it.

PART B · 5 PUZZLES

B Puzzles

3 YOU'RE THE COMPILER

You are the compiler. For each snippet, decide whether it compiles. If it does, write what it displays. If it doesn't, say why in a few words.

Snippet	Compiles?	Output, or why not
1 int price = 4.50;		
2 double temp = -2.5; System.out.println(temp);		
3 boolean sunny = "false";		
4 int goals = 3; goals = 5; System.out.println(goals);		
5 boolean lightsOn = 0;		



FAIR QUESTION

Why won't Java just round 4.50 down to 4 and keep going?

Because losing part of a value without telling you is how bugs hide. An `int` variable promises that its value is always a whole number. If you really need cents, the variable should be a `double`. Java makes you choose instead of guessing for you.

4

SNIPPET POOL

Hopper's reading tracker stores whole pages read, a star rating such as 4.5, and whether the book is finished. Fill each hole with a type from the pool so the code compiles and displays 212, then 4.5, then `false`, each on its own line. Some snippets aren't needed.

```
(1) pagesRead = 212;
(2) rating = 4.5;
(3) finished = false;
System.out.println(pagesRead);
System.out.println(rating);
System.out.println(finished);
```

THE POOL

Each snippet can be used only once, and not every snippet is needed.

double	Int	boolean	String
int	bool		



WATCH OUT

Don't choose a type from one example value. A bus ride costs \$2 today, so `int fare = 2;` works. Next month the fare is \$2.25, and that value can't go into an `int`. Ask what values the information could ever have.

5 CODE TILES

A classroom app stores the number of seats and the distance to the gym in miles. Put tiles in order so the code displays the output below. Two tiles are decoys: one doesn't compile, and one displays the wrong thing.

<code>System.out.println(seats);</code>	<code>double seats = 30.0;</code>
<code>int seats = 30;</code>	<code>System.out.println(miles);</code>
<code>double miles = 2.5;</code>	<code>int miles = 2.5;</code>

Target output
30
2.5

YOUR CODE

6 FACE-OFF

Tonight: `int` and `double` argue about who holds numbers better. Fill in the blanks.

INT	I hold integers. Whole numbers only, written with no _____.
DOUBLE	I hold real numbers. Store <code>9.0</code> in me and I'll display it as _____, not <code>9</code> .
INT	Try putting <code>3.5</code> in me and the _____ stops everything. It calls that a possible _____ conversion.
DOUBLE	Because to fit, you'd have to throw away the _____.
INT	At least nobody uses you to count students. There's never _____ a student.
DOUBLE	Fine. But prices and temperatures can have fractions, so they pick _____.

7 PENCIL CHECK

Trace the code one line at a time. Fill in the value of `gems` after each line runs, and anything the line displays.

```
1 int gems = 5;
2 System.out.println(gems);
3 gems = 12;
4 gems = 0;
5 System.out.println(gems);
```

Line	gems	Displayed
1		
2		
3		
4		
5		

PART C · 3 QUESTIONS

C Catch the mistake

8 ONE-TOKEN FIX

This code should display 40 and then 75, but it doesn't compile. Remove or change exactly one token so it works.

```
1 int score = 40;
2 System.out.println(score);
3 int score = 75;
4 System.out.println(score);
```

WHY IT DOESN'T COMPILE, AND YOUR FIX

9 TWO TRUTHS AND A LIE

A club app stores three facts about a member. Two claims about it are true and one is a lie. Circle the lie, then rewrite it so it's true.

```
int age = 15;
double gpa = 3.8;
boolean member = true;
System.out.println(gpa);
```

- 1 All three variables have primitive types.
- 2 The code displays 3.8.
- 3 To store a short nickname like "Al", a primitive type works, because the value is so small.

THE LIE, REWRITTEN

10 WHO AM I?

Some ideas from today are playing a party game. Each gives a clue about itself. Name the idea.

Clue	I am...
I'm a set of values plus the operations you can do on them.	
I'm a named storage location that holds one value at a time.	
I'm the statement that gives a variable its type and name, like <code>int laps;</code>	
I'm a primitive type with exactly two values.	
I'm the category for every type that isn't primitive. <code>String</code> belongs to me.	
I'm the naming style that writes <code>milesWalked</code> , not <code>mileswalked</code> .	