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| **APCS Exposure Java** | **Exercises 03.01-06** | **Date:** |
| **Name: KEY** | | **Period:** |

1. What makes Math, Science and Computer Science possible?

*variables*

2. A computer program is made up of words, which usually are called what?

*Keywords*

3. Under what condition will the compiler create a *bytecode* file?

*A compiler will only create a bytecode file if the source code obeys all the Java syntax rules.*

4. What is the first Java syntax rule?

*Use only keywords known by the Java compiler.*

5. List the 3 categories of *keywords*.

*Reserved words, pre-defined identifiers and user-defined identifiers*

6. List 3 examples of Java *Reserved Words*.

*public, static, void*

7. Java has a large number of libraries that enhance the basic Java language. These libraries contain special program modules that perform a variety of tasks to simplify the life of a programmer. What are these modules called?

*methods*

8. List 2 examples of *Predefined Identifiers*.

*print and println*

9. When you are creating *User-Defined Identifiers*, you must make sure your identifier is not one of what two things?

*A reserved word or a pre-defined identifier*

10. What are the rules for naming an identifier?

*Use alpha-numeric characters and start with an alpha character.*

11. Print the Java statement that will declare **x** as an integer.

*int x;*

12. Refer to the previous question. Print the statement that will assign the value of 7 to **x**.

*x = 7;*

13. In program ***Java0301.java***, why does the statement: **System.out.println(a);** display the value of *10* and not *a*?

*The letter is not between double quotes.*

14. Why does program ***Java0302.java*** not compile?

*There are no values assigned to the variables.*

15. Print the Java statement that will declare **x** as an integer and assign the value of 7 to **x** in one single statement.

*int x = 7;*

16. List Java’s 4 integer types.

*byte, short, int and long*

17. How many bytes are used by an **int**?

*4*

18. What is the largest value of a **byte**?

*127*

19. Would a **short** be appropriate to store Zip Codes?

*No*

20. Explain your answer to the previous question.

*A short cannot hold any number above 32,767. Many zip codes are larger than this.*

21. What are the 5 integer operations?

*Addition, subtraction, multiplication, integer quotient division and integer remainder division*

22. What is the difference between the **/** and the **%** division operators?

*/ is for integer quotient division and % is for integer remainder division*

**In questions 23 through 32 fill in the integer quotient and the integer remainder.**

23. 20 / 1 = \_\_\_\_\_\_\_?  *20* 20 % 1 = \_\_\_\_\_\_\_? *0*

24. 20 / 2 = \_\_\_\_\_\_\_?  *10* 20 % 2 = \_\_\_\_\_\_\_? *0*

25. 20 / 3 = \_\_\_\_\_\_\_? *6*  20 % 3 = \_\_\_\_\_\_\_? *2*

26. 20 / 4 = \_\_\_\_\_\_\_? *5*  20 % 4 = \_\_\_\_\_\_\_? *0*

27. 20 / 5 = \_\_\_\_\_\_\_? *4*  20 % 5 = \_\_\_\_\_\_\_? *0*

28. 20 / 6 = \_\_\_\_\_\_\_? *3* 20 % 6 = \_\_\_\_\_\_\_? *2*

29. 20 / 7 = \_\_\_\_\_\_\_? *2* 20 % 7 = \_\_\_\_\_\_\_? *6*

30. 20 / 8 = \_\_\_\_\_\_\_? *2* 20 % 8 = \_\_\_\_\_\_\_? *4*

31. 20 / 9 = \_\_\_\_\_\_\_? *2*  20 % 9 = \_\_\_\_\_\_\_? *3*

32. 20 / 10 = \_\_\_\_\_\_\_? *2* 20 % 10 = \_\_\_\_\_\_\_? *0*

33. What 2 data types are used by Java use for *real numbers*?

*float and double*

34. Refer to the previous questions. Which of these is more accurate?

*double*

35. What are the 4 real number operations?

*Addition, subtraction, multiplication, and real number quotient division*

36. Is *real number remainder division* possible in Java? If so is it practical?

*Yes No*

37. In binary, what indicates if a number is positive or negative?

*If the first bit is 0, the number is positive and if the first bit is 1, the number is negative*

38. How is it possible for a computer to multiply 2 positive numbers, and get a negative product?

*Memory flow, which alters the sign bit*

39. Explain *Memory Overflow*.

*A condition that occurs when the mathematical value is too large to be stored in the actual*

*computer memory space.*

**Assume** x **is an** int **for the next several questions.**

40. What does **x++;** or **++x;** mean?

*In both case variable x is incremented by 1.*

41. What does **x--;** or **–x;** mean?

*In both cases variable x is decremented by 1.*

42. Should Java shortcuts be combined with other Java statements?

Example: **System.out.println(x++);**

*No, it causes confusion.*

43. What does **x += 5;** mean?

*Increase x by 5.*

44. What does **x -= 5;** mean?

*Decrease x by 5.*

45. What does **x \*= 5;** mean?

*Multiply x by 5.*

46. What does **x /= 5;** mean?

*Divide x by 5.*

47. What does **x %= 5;** mean?

*x will become the remainder of dividing x by 5.*