AP Java Practice Mid-Term Exam Name:_____

Matching

1)	j ==	a) Square root
2)	p !=	b) increment (Add one to a variable)
3)	n &&	c) Variable type with decimals
4)	r int	d) Finds the remainder of integer division
5)	c double	e) Returns the number of characters
6)	q String	f) Finds the location of the first occurrence
7)	d %	of a substring in a string.
8)	b i++	g) A non-object
9)	i i--	h) Can be accesses from 'outside'
10)	f stringVar.indexOf()	i) Decrement (Subtract one from a
11)	s stringVar.equals()	variable)
12)	o stringVar.compareTo()	j) Logically equal to
13)	e stringVar.length()	k) Use to calculate exponents
14)	g primitive type	L) Returns nothing
15)	a Math.sqrt()	m) Logical OR
16)	k Math.pow()	n) Logical AND
17)	h public	o) <0 when less than
18)	t Math	p) NOT EQUAL
19)	L void	q) A variable that can store names
20)	m ||	r) Number without decimals
		s) Boolean method used to compare strings.
		t) A class that includes a method for creating random numbers.
		u) An abstract instantiation of an inherited method.

Short Answer

Math

```
int n = 3;
double result;
```

21) Show the value of result for the following
   a. 6 result = (n+1) * n/2;
   b. 4 result = (n+1) * (n/2);
   c. 0 result = (1/2)*n*(n+1);
   d. 2 result = 17 % 3;

22) Describe the range of random values that the following will produce.
   a. 0 to 5 (int) (6*Math.random())
   b. 4 to 13.9999999 (int) 10*Math.random() + 4
   c. -5 to 33 odd 2*((int) 20*Math.random()) - 5

d. 6 to 28 even 2* ((int) 12*Math.random()) + 6

23) Write the code to model the following

a. (int)(10*Math.random()) +1 Integer from 1 to 10
b. (int)(43*Math.random()) - 5 Integer from – 5 to 37
c. (int)(20*Math.random()) +1+ (int)(20*Math.random()) +1A pair of 20 sided dice
d. 2*((int)(17*Math.random())) +4 Even numbers from 4 to 36

24) Assuming that x, y, and z are integer variables, which of the following three logical expressions are equivalent to each other, that is, have the same values for any values of x, y and z?

I. (x = = y && x != z) || (x!= y && x = = z)
II. (x == y || x == z) && (x!= y || x!= z)
III. (x == y) != (x == z)

a) I
b) II and III only
c) <u>I and II only</u>
d) I, II, and III
e) None of these

27) Consider the following chunks of code. For which integers do they show the same result.

```
int product = 1;

int k;                                          720
for ( k = 2; k <= n; k++)
{
        product *= k;
}
System.out.println(product);
```

28) Consider the following code segment

```
int x =20;
int y = 5;                                      -1
while ( x > y)
{
        x --;
        y++;
}
System.out.println(x – y);
```

31) int num =6, num2 = 15;
Sop (num+ " checking answer "+ num2);
Sop (num2/num);
Sop(num2 % num);

Answer: {3 pts}

6 checking answer 15
2
3

32)
```
public class DryRun4                                    ****
{                                                       ****
    public static void main(String args[])              ****
    {
       int j, k;


        for (j=1; j<=3; j++)
        {
           for (k=1; k<=4; k++)
           {
                  System.out.print('*');
           }
           System.out.println();
        }


    }
```

33) Dry Run

```
for(int num = 20; num >= 0; num--)
{
  if(num % 4 == 2)
    System.out.println(num);
}
```

18
14
10
6
2

34) Dry Run

```
int k = 5;
while((k >= 0) && (k % 2 == 1))
{
  System.out.print(k);
  k = 2*k - 5;
}
```

5
5
5
5
5
. . .

Complete the following

Decimal	Binary	Octal	Hexadecimal
51	110011	63	33
90	1011010	132	5A
41	101001	51	29
81	1010001	121	51

II. Write the code for ***1*** of the following from each section :{ 15 pts}
Start with ***public static void main(String args[]). You do not need to include any imports.***

A. Write a program that will flip a coin 100 times and output the longest streak of flipping heads

For Example
If you flipped: H, H, H, T, T, H, H, H, H, T, T, T, H, T
The longest streak of heads was 4.

B. Input: An unknown number of names and ages.
Output: The name of the youngest person.

III. Write the code for one of the following

A. Input: An unknown number of test scores
Output: The modified average of the scores. For the modified average you will throw out the highest and lowest scores and show the average of the remaining scores.

B. Write a program that uses a for loop to evaluate the following

$$\sum_{n=1}^{5} \frac{3n+2}{n+1}$$

= (3*1+2)/(1+1) + (3*2+2)/(2+1) + … (3*5+2)/(5+1)