

CS-261 - Mathematical Foundations of Computer Science
Pretest: Multiple choice - circle the best answer.

Name _____

Prerequisite Math 162L (Calculus I):

1) The value of $\frac{5}{6} + \frac{1}{4} =$

- a) 1 b) $1\frac{1}{12}$ c) $\frac{6}{10}$ d) $1\frac{1}{6}$ e) $1\frac{1}{2}$

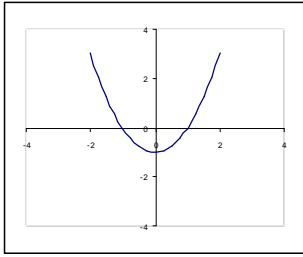
2) Given the equation: $y = mx + b$. Let $m = 2$, $b = -3$, $x = 4$, then the value of y is:

- a) -3 b) -1 c) 0 d) 2 e) 5

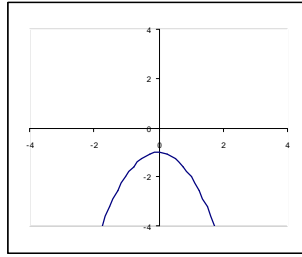
3) Given the equation: $y = 2^x + \frac{3x}{2(x-1)}$. Let $x = 4$, then the value of y is:

- a) 16 b) 18 c) 20 d) 22 e) 24

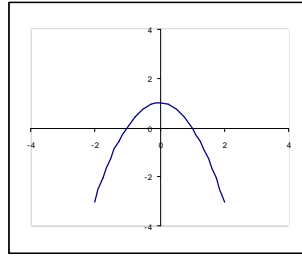
4) Which is the graph of the equation: $y = x^2 - 1$?



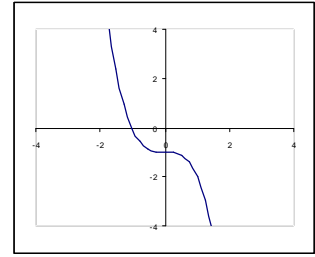
a)



b)

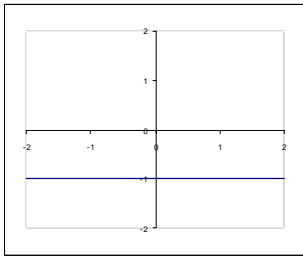


c)

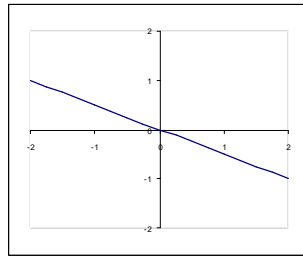


d)

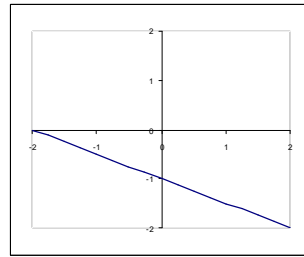
5) Which is the graph of the derivative of: $y = x^2 - 1$?



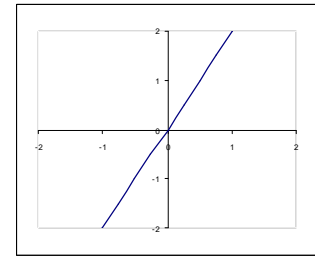
a)



b)



c)



d)

Prerequisite CS 152L (Computer Programming Fundamentals):

6) What will be the output of the following Java method:

```
public static void boo()  
{  
    int x=0;  
    for (int i=1; i<5; i++)  
    {  
        x = x + i;  
    }  
    System.out.println("x="+x);  
}
```

- a) x=4 b) x=5 c) x=7 d) x=10 e) x=15

Use method foo() to answer questions 7-9.

```
1) public static void foo()  
2) { int a[][] = new int[3][4];  
3)   for (int i=0; i<3; i++)  
4)     { for (int k=0; k<4; k++)  
5)       { a[i][k] = (i*4)+k;  
6)     }  
7)     System.out.println("i="+i);  
8)   }  
9)   System.out.println(a[2][0]);  
10) }
```

7) In a call to method foo(), how many times is line 7 executed?

- a) 1 b) 2 c) 3 d) 7 e) 12

8) In a call to method foo(), how many times is line 5 executed?

- a) 1 b) 2 c) 3 d) 7 e) 12

9) In a call to method foo(), what is the output of line 9?

- a) 4 b) 8 c) 16 d) 20 e) 24

10) What is the output of Java method goo()?

```
public static void goo()  
{ int a[] = new int[100];  
  a[0] = 2;  
  a[1] = 2;  
  for (int i=2; i<99; i++)  
  { a[i] = a[i-1] + a[i-2];  
  }  
  System.out.println("a[5]="+a[5]);  
}
```

- a) a[5]=2 b) a[5]=4 c) a[5]=8 d) a[5]=16 e) a[5]=32