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CSCI 3731 A

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1. What is a pointer? What is the closest thing to a pointer in Java?

A pointer holds the memory address of a variable. The closest thing to a pointer in java would be a reference.

9. Describe what each of the following declare:

(a) `int* a;` int pointer called a

(b) `const int b;` constant int called b

(c) `const int* c;` pointer to a constant int

(d) `int* const d;` constant pointer to a non-constant int

(e) `const int* const e;` constant pointer to a constant int

12. This code computes both the square and cube of a number. What is wrong with it and, how would you fix it?

```
double* powers(double x, double* x3_ptr) {  
    double x2 = x*x;  
    *x3_ptr = x2*x;  
    return &x2;  
}
```

X2 gets deleted. Powers returns a pointer to memory that used to be a valid variable.

14. Sometimes when you call this function, you get a seg fault. In what line is the seg fault occurring?

```

void twitchy(int in, int* out) {
    int sum = 0;
    for(int i=0; i<n; ++i) { im going to assume i<n is supposed to be i<in
        if(i%2) sum + 5;
        else sum /= 2;
    }
    *out = sum;
}

```

Line 7 `*out = sum;` ". Pointer isn't initialized

15. The following code does not compile. What is wrong and how would you fix it?

```

int n = -1;
scanf("%d", n);

```

missing & in front of variable n