

Signature \_\_\_\_\_

CSE 11

Name \_\_\_\_\_

Quiz 3

cs11f \_\_\_\_\_

Fall 2009

Student ID \_\_\_\_\_

This quiz is to be taken **by yourself** with closed books, closed notes, no calculators.

What is the output produced by this program? (Hint: Draw Stack Frames!)

```
public class Mystery
{
    public static void main( String[] args )
    {
        Mystery ref = new Mystery();

        System.out.println( ref.mystery( 5 ) );
    }

    private int mystery( int a )
    {
        int b = a + 3;

        if ( b >= 6 )
        {
            System.out.println( b );
            b = a + mystery( a - 1 );
            System.out.println( a );
        }
        else
        {
            System.out.println( "Whoa!" );
            b = a;
            System.out.println( a );
        }

        return b;
    }
}
```

Output

(over)

Given the following definitions:

```
public interface Speakable
{
    public String speak();
}
```

```
public class Puppy implements Speakable
{
    private static final String
        PUPPY_SPEAK = "Bark";

    public Puppy()
    {
        // ctor initialization here
    }

    public String speak()
    {
        return PUPPY_SPEAK;
    }

    public void sleep( int time )
    {
        // puppy sleeps for time seconds
    }
}
```

```
public class Kitty implements Speakable
{
    private static final String
        KITTY_SPEAK = "Meow";

    public Kitty()
    {
        // ctor initialization here
    }

    public String speak()
    {
        return KITTY_SPEAK;
    }

    public void wag()
    {
        // kitty wags its tail
    }
}
```

And the following variable definitions:

```
private Puppy puppy;
private Kitty kitty;
private Speakable speakable;
```

Indicate which are valid Java statements. Consider each statement executed sequentially in the order it appears.

- A) Invalid Java statement – Compiler Error
- B) Valid Java statement – No Compiler Error

Hint: What does the compiler know about any reference variable at compile time (vs. run time)?

```
kitty = new Kitty(); _____
puppy = new Puppy(); _____
puppy.speak(); _____
puppy.wag(); _____
puppy.sleep( 1000 ); _____
kitty.speak(); _____
kitty.wag(); _____
kitty.sleep( 2000 ); _____
speakable = kitty; _____
speakable.speak(); _____
speakable.wag(); _____
speakable = puppy; _____
speakable.speak(); _____
speakable.sleep( 3000 ); _____
puppy = kitty; _____
speakable = new Speakable(); _____
```