Conditionals

For exercises 1 to 27, indicate the output that will be produced. Assume the following declarations:

```
final int MAX = 25, LIMIT = 100;
int num1 = 12, num2 = 25, num3 = 87;
```

1.
```
if (num1 < MAX)
   System.out.println ("apple");
```

2.
```
if (num2 <= MAX)
   System.out.println ("apple");
System.out.println ("orange");
```

3.
```
if (MAX > num3)
   System.out.println ("apple");
System.out.println ("orange");
```

4.
```
if (num3 >= LIMIT)
   System.out.println ("apple");
   System.out.println ("orange");
System.out.println ("pear");
```

5.
```
if (num2 == MAX)
{
   System.out.println ("apple");
   System.out.println ("orange");
}
System.out.println ("pear");
```

6.
```
if (num3-num2 > 2*MAX)
   System.out.println ("apple");
else
   System.out.println ("orange");
```

7.
```
if (LIMIT+num3 <= 150)
{
   System.out.println ("apple");
   System.out.println ("orange");
}
else
   System.out.println ("pear");
```

8.
```
if (2*num1 != num2)
   System.out.println ("apple");
else
{
   System.out.println ("orange");
   System.out.println ("pear");
}
```

9.
```
if (LIMIT%num1 + 4 == num1 + (MAX-num2))
{
   System.out.println ("apple");
   System.out.println ("orange");
}
else
{
   System.out.println ("pear");
   System.out.println ("banana");
}
```

10.
```
if (num1 < MAX)
   if (LIMIT >= num2)
      System.out.println ("apple");
System.out.println ("orange");
```

11.
```
if (LIMIT <= LIMIT)
   if (num3 == num1)
      System.out.println ("apple");
System.out.println ("orange");
```

12.
```
if (num2 > 18)
   if (num1 < 0)
      System.out.println ("apple");
   else
      System.out.println ("orange");
System.out.println ("pear");
```

13.
```
if (LIMIT >= 4*num2)
   if (MAX == 25)
      System.out.println ("apple");
   else
      System.out.println ("orange");
else
   System.out.println ("pear");
```

14.
```
if (num2 < num1)
   if (num3 < LIMIT)
      System.out.println ("apple");
else
   System.out.println ("orange");
System.out.println ("pear");
```

15.
```
if (num3 == 87)
{
   if (num2 != MAX)
      System.out.println ("apple");
}
else
   System.out.println ("orange");
System.out.println ("pear");
```

16.
```
if (num1+num2 > num3)
   System.out.println ("apple");
else
   if (num2*LIMIT != 3298)
      System.out.println ("orange");
```

17.
```
if (LIMIT%MAX == 3)
   System.out.println ("apple");
else
   if (num2 == MAX)
      System.out.println ("orange");
   else
      System.out.println ("pear");
```

18.
```
if (num3 >= MAX)
{
   if (MAX/num2 == 1)
      System.out.println ("apple");
   System.out.println ("orange");
   if (LIMIT-num3 > num1+2)
      System.out.println ("pear");
   else
   {
      System.out.println ("banana");
      System.out.println ("kiwi");
   }
}
else
   if (num2*2 == MAX*2)
      System.out.println ("grapefruit");
```

```
      else
         System.out.println ("lime");
   System.out.println ("coconut");
```

19.
```
if (num2 > num1 && LIMIT != 100)
   System.out.println ("apple");
System.out.println ("orange");
```

20.
```
if (num3 == num2 && MAX > 50)
   System.out.println ("apple");
System.out.println ("orange");
```

21.
```
if (num1 > 7 && LIMIT <= 100)
   System.out.println ("apple");
System.out.println ("orange");
```

22.
```
if (num3 < 40 || num3 > 50)
   System.out.println ("apple");
System.out.println ("orange");
```

23.
```
if (MAX == LIMIT || num1*2 == num2)
   System.out.println ("apple");
System.out.println ("orange");
```

24.
```
if (num2%2 != 0 || num3 > LIMIT)
   System.out.println ("apple");
System.out.println ("orange");
```

25.
```
if (MAX == 25 && num2 != MAX || num1 < num3)
   System.out.println ("apple");
System.out.println ("orange");
```

26.
```
if (num3 == 87 || num2 > num1 && MAX > LIMIT)
   System.out.println ("apple");
System.out.println ("orange");
```

27.
```
if ((num3 == 87 || num2 > num1) && MAX > LIMIT)
   System.out.println ("apple");
System.out.println ("orange");
```

For exercises 28 to 41, write code segments that will perform the specified action. Assume that all variables have already been declared and given values.

28. Print `"Hurrah!"` if `sum` is evenly divisible by `count`.

29. Increment the integer variable `total` if `total` is zero and decrement `total` otherwise.

30. Print `"num is zero"`, `"num is negative"`, or `"num is positive"` as appropriate based on the current value of `num`.

31. Print `"num is zero"`, `"num is even"`, or `"num is odd"` as appropriate based on the current value of `num`.

32. Print `"Victory"` only if `result` is greater than or equal to 500 and `penalty` is equal to zero (use nested ifs).

33. Print `"Victory"` only if `result` is greater than or equal to 500 and `penalty` is equal to zero (use logical operators).

34. Assign the smallest of two integer values `num1` and `num2` to the variable `smallest`. (use an if-else statement)

35. Assign the smallest of two integer values `num1` and `num2` to the variable `smallest`. (use the conditional operator)

36. Assign the smallest of three integer values `num1`, `num2`, and `num3` to the variable `smallest`. (do not use logical operators)

37. Assign the smallest of three integer values `num1`, `num2`, and `num3` to the variable `smallest`. (use logical operators)

38. Print `"This character is a vowel."` if the character stored in the variable `letter` is a lowercase vowel.

39. Of the two characters stored in the variables `ch1` and `ch2`, print the one which comes later in the Unicode character set.

40. Print `"Uppercase"`, `"Lowercase"`, or `"Not a letter"` depending on whether the character stored in `ch` is an uppercase alphabetic character, a lowercase alphabetic character, or not an alphabetic character at all.

41. Print `"Equal"` if two floating point values stored in `val1` and `val2` are exactly equal, `"Essentially Equal"` if they are within 0.0001 of each other, or `"Not Equal"` otherwise.