## Midterm 2 Study Guide

**Due** No due date

Points 25

**Questions** 25

Time Limit 30 Minutes

**Allowed Attempts** Unlimited

## Take the Quiz Again

## **Attempt History**

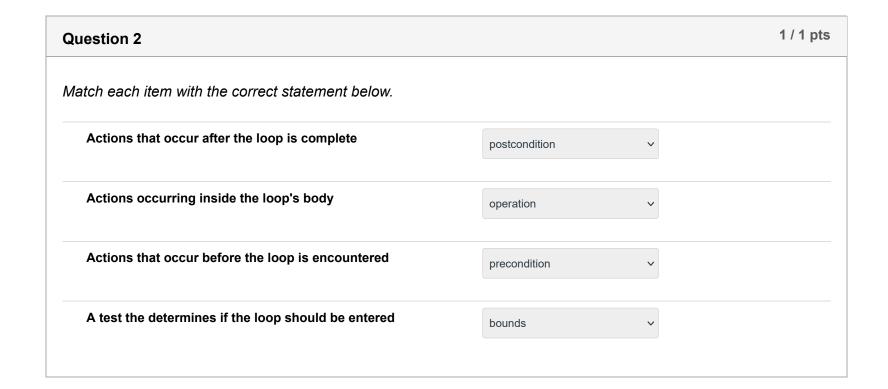
	Attempt	Time	Score	
KEPT	Attempt 7	28 minutes	21 out of 25	
LATEST	Attempt 9	29 minutes	20 out of 25	
	Attempt 8	29 minutes	20.5 out of 25	
	Attempt 7	28 minutes	21 out of 25	
	Attempt 6	24 minutes	21 out of 25	
	Attempt 5	20 minutes	17.83 out of 25	
	Attempt 4	30 minutes	17.67 out of 25	
	Attempt 3	22 minutes	16 out of 25	
	Attempt 2	16 minutes	16.17 out of 25	
	Attempt 1	30 minutes	18.33 out of 25	

(!) Correct answers are hidden.

Submitted Jun 28 at 2:30am

Incorrect

**Question 3** 



Look at the problem statement below. The \_\_\_\_\_ of the loop is that a period was encountered.

0 / 1 pts

How many characters are in a sentence? Count the characters in a string until a period is encountered. If the string contains any characters, then it will contain a period. Count the period as well.	
Obounds	
O plan	
O None of these	
goal	

Question 4	1 / 1 pts
An <i>unguarded</i> loop is also known as a <i>test-at-the-bottom</i> loop.	
True	
○ False	

Incorrect Question 5 0 / 1 pts



Below is the illustration from the loop building strategy. The *highlighted lines* represent. Add one to (or increment) the counter variable:

```
Given: the variable str is a string (may be empty)
Create the counter variable, initialized to -1
If the variable str has any characters then
    Set counter to 0
    Create the variable current-character as a character
    Place the first character in str into current-character
    While more-characters and current-character not a period
       Add one to (or increment) the counter variable
Store the next character from str in current-character
    If current-character is a period then
       Add one to the counter to account for the period.
    Else
      Set counter to -2
If counter is -1 the string was empty
Else if counter is -2 there was no period
O loop bounds
goal operation

    goal precondition

loop postcondition

    bounds precondition

advancing the loop
```

Question 6

The highlighted section below illustrates.
Current-character not a period:

Question 7		1 / 1 pts
Match each item with the correct question below.		
What information is produced?	goal precondition	V
Can my loop reach its bounds?	necessary bounds	v
How is the data processed?	loop operations or actions	V
What makes this loop quit?	loop bounds	~

Question 8	1 / 1 pts
In a <i>guarded</i> loop, the loop actions may never be executed.	
True	
○ False	

Question 9	1 / 1 pts
Loop bounds used when searching through input.	
O None of these	
O data bounds	
O limit bounds	
sentinel bounds	



```
What prints here?

int i = 5;
while (i) cout << i--;
cout << endl;

Syntax error: i is not a Boolean expression

54321

Infinite loop

4321

43219
```

Question 11	/ 1 pts
What prints?	
<pre>void fn(int, double, double&amp;) { cout &lt;&lt; "A" &lt;&lt; endl; } void fn(int, int, double&amp;) { cout &lt;&lt; "B" &lt;&lt; endl; } void fn(int, int, double) { cout &lt;&lt; "C" &lt;&lt; endl; } void fn(int, int, int) { cout &lt;&lt; "D" &lt;&lt; endl; }</pre>	
<pre>int main() {     auto n = 3.5;     fn(1, 2.5, n); }</pre>	
○ c	
O Syntax error: ambiguous	
ОВ	
O Syntax error: no candidates	
○ D	

```
Question 12

What is the output of the following?

string s = "12345";
int i = 1;
while (i < 5)
{
    cout << s.substr (i, 1);
    i++;
}

    No output

    ② 2345
    ① 12345
</pre>
```

Incorrect Question 13

0 / 1 pts

```
Which line in the function "skeleton" below contains an error?
#include "digits.h"
                          // 1.
int firstDigit(int n);
                         // 2.
                         // 3.
   return 0;
                          // 4.
}
                          // 5.
   0 // 4.
  None of these
  O // 3.
   O // 2.
   O // 5.
   O // 1.
```

```
What is the output of the following?

int i = 0;
while (i != 11)
{
    cout << i << " ";
    i = i + 2;
}

No output

0 0 2 4 6 8 10 12 14 .... (infinite loop)

10 12 14 16 18 .... (infinite loop)

0 2 4 6 8
```

```
Question 15 1/1 pts
```



Question 16	1 / 1 pts
An <i>undeclared</i> error message is a compiler error.	
True	
O False	

Question 17	1 / 1 pts
What prints here?	
<pre>auto a = 3, b = 3; cout &lt;&lt; (a != b ? "panda": a % 2 ? "stork": "tiger") &lt;&lt; endl;</pre>	
stork	
O Does not compile	
O Undefined behavior	
O panda	
O tiger	

```
What does this code do?

ifstream in("temp.txt");
char x;
int i{0};
while (in >> x) i++;
cout << i << endl;

Counts the number of lines in the file

Counts the number of words in the file
```



Counts the number of non-space characters in the fil     Gets stuck in an endless loop	÷		
Gets stuck in an endless loop			
Counts the number of characters in the file			

Question 19	1 / 1 pts
Assume the user types "brown cow" when this code runs. What type is ch2?	
<pre>char ch1; auto ch2 = cin.get(ch1);</pre>	
○ char	
O bool	
⊚ istream&	
O ostream&	
O int	

Question 20	1 / 1 pts
What does this function do?	
<pre>int mystery(int n) {    if (n == 1) return 1;    return n * mystery(n-1); }</pre>	
Computes the Factorial number n	
Produces a stack overflow	
Computes the Gauss series (sum) of 1n	
Computes the Fibonacci number n	
Computes the reverse of the input n	

Question 21	1 / 1 pts
Counting the number of words in input by counting word transitions is an example of a process filter.	
O True	
False	

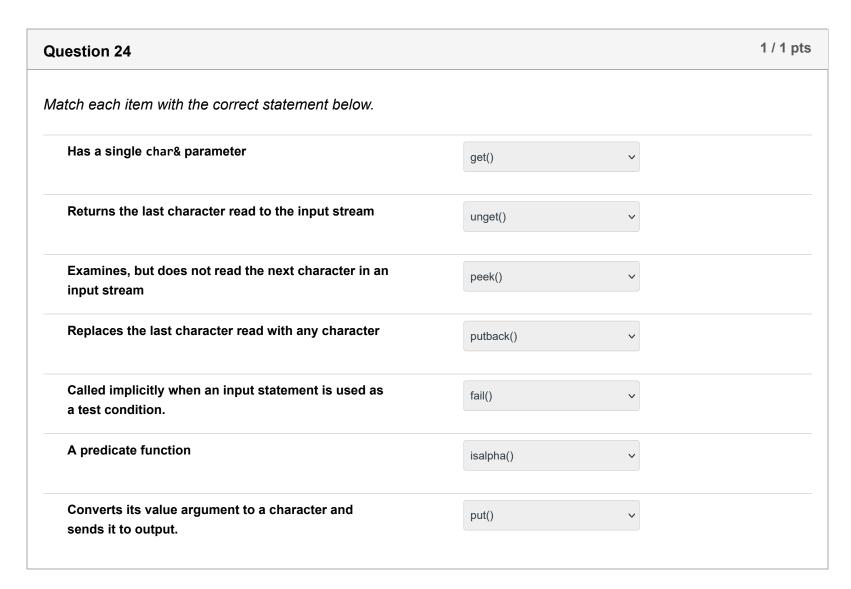
Question 22 1/1 pts

In 1735 Leonard Euler proved a remarkable result, which was the solution to the *Basel Problem*, first posed in 1644 by Pietro Mengoli. This result gave a simple expression for  $\pi$ . The formula states that  $\frac{\pi^2}{6}$  is equal to the limit, as n goes to infinity, of the series  $\frac{1}{1} + \frac{1}{2^2} + \frac{1}{3^2} + \dots + \frac{1}{n^2}$ . Can this series be computed recursively?



O No, because the base	case is not zero	
O Yes, but the code will	pe very long	
O No, because there is r	o base case	
Yes		

Question 23	1 / 1 pts
Which line runs a.out getting its input from in.txt and sending its output to the file out.txt, and its errors to file err.txt?	o the
O ./a.out >> in.txt > out.txt 2> err.txt	
./a.out < in.txt > out.txt 2> err.txt	
○ None of these	
○ ./a.out < in.txt 2>&1 out.txt >> err.txt	
O ./a.out > in.txt < out.txt 2> err.txt	
○ ./a.out < in.txt > out.txt 2>&1 err.txt	





0	it is called just one time to set the sign of the final result
•	it makes sure the sign (positive or negative) alternates as each term of the series is computed
0	it is the recursive call in the function
0	it checks the sign of the number and returns true if it is positive and false if negative

