CISS240: Introduction to Programming
Quiz q0203

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This is a closed-book, no compiler, 5 minute quiz.

Q1. What is the output of following code fragment:

```
std::cout << 135246 / 10000 << std::endl;
```

Answer:

```
13
```

Q2. What is the output of following code fragment:

```
std::cout << 135246 % 100 << std::endl;
```

Answer:

```
46
```

Q3. What is the output of the following code fragment:

```
std::cout << (1357246 / 10000 % 100)  << std::endl;
```

Answer:

```
35
```

Q4. What is the integer printed by the following code fragment:

```
std::cout << (1357246 % 10000 / 100)  << std::endl;
```

Answer:

```
24
```

Q5. To print the 4th digit from the right of `1357246` (which is `7`), I can execute this code fragment

```
std::cout << (1357246 / x % 10) << std::endl;
```

where `x` is a 10-power (i.e., `x` is `1` or `10` or `100` or `1000` or `10000`, etc.) What is the value of `x`?
Answer:

```
1000
```

Q6. To check if 35 is a prime, I can execute the following code fragment:

```
std::cout << 35 % 2 << '\n';
std::cout << 35 % 3 << '\n';
std::cout << 35 % 4 << '\n';
std::cout << 35 % 5 << '\n';
std::cout << 35 % 6 << '\n';
std::cout << 35 % 7 << '\n';
std::cout << 35 % 8 << '\n';
std::cout << 35 % 9 << '\n';
std::cout << 35 % 10 << '\n';
std::cout << 35 % 11 << '\n';
std::cout << 35 % 12 << '\n';
std::cout << 35 % 13 << '\n';
std::cout << 35 % 14 << '\n';
std::cout << 35 % 15 << '\n';
std::cout << 35 % 16 << '\n';
std::cout << 35 % 17 << '\n';
std::cout << 35 % 18 << '\n';
std::cout << 35 % 19 << '\n';
std::cout << 35 % 20 << '\n';
std::cout << 35 % 21 << '\n';
std::cout << 35 % 22 << '\n';
std::cout << 35 % 23 << '\n';
std::cout << 35 % 24 << '\n';
std::cout << 35 % 25 << '\n';
std::cout << 35 % 26 << '\n';
std::cout << 35 % 27 << '\n';
std::cout << 35 % 28 << '\n';
std::cout << 35 % 29 << '\n';
std::cout << 35 % 30 << '\n';
std::cout << 35 % 31 << '\n';
std::cout << 35 % 32 << '\n';
std::cout << 35 % 33 << '\n';
std::cout << 35 % 34 << '\n';
```

But in fact I can stop earlier. What is the smallest value of `d` such that I can stop at `35 % d`?

Answer:

```
5
```

Instructions

In the file `thispreamble.tex` look for

```
\renewcommand\AUTHOR{}
```

and enter your email address:

```
\renewcommand\AUTHOR{jdoe5@cougars.ccis.edu}
```

(This is not really necessary since alex will change that for you when you execute `make`.) In your bash shell, execute "`make`" to recompile `main.pdf`. Execute "`make v`" to view `main.pdf`.

Enter your answers in `main.tex`. In the bash shell, execute "`make`" to recompile `main.pdf`. Execute "`make v`" to view `main.pdf`.

For each question, you'll see boxes for you to fill. For small boxes, if you see

```
1 + 1 = \answerbox{}.
```

you do this:

```
1 + 1 = \answerbox{2}.
```

`answerbox` will also appear in "true/false" and "multiple-choice" questions.

For longer answers that need typewriter font, if you see

```
Write a C++ statement that declares an integer variable name x.
\begin{answercode}
\end{answercode}
```

you do this:

```
Write a C++ statement that declares an integer variable name x.
\begin{answercode}
int x;
\end{answercode}
```

`answercode` will appear in questions asking for code, algorithm, and program output. In this case, indentation and spacing is significant. For program output, I do look at spaces and newlines.

For long answers (not in typewriter font) if you see

```
What is the color of the sky?
\begin{answerlong}
\end{answerlong}
```

you can write

```
What is the color of the sky?
\begin{answerlong}
The color of the sky is blue.
\end{answerlong}
```

A question that begins with "T or F or M" requires you to identify whether it is true or false, or meaningless. "Meaningless" means something's wrong with the question and it is not well-defined. Something like "$1 + 2 = 4$" is either true or false (of course it's false). Something like "$1+_2 = 4$?" does not make sense.

When writing results of computations, make sure it's simplified. For instance write 2 instead of $1 + 1$.

Higher level classes.

For students beyond 245: You can put LaTeX commands in `answerlong`.

More examples of meaningless statements: Questions such as "Is $42 = 1+_2$ true or false?" or "Is $42 = \{2\}^{\{3\}}$ true or false?" does not make sense. "Is $P(42) = \{42\}$ true or false?" is meaningless because $P(X)$ is only defined if X is a set. For "Is $1 + 2 + 3$ true or false?", "$1 + 2 + 3$" is well–defined but as a "numerical expression", not as a "proposition", i.e., it cannot be true or false. Therefore "Is $1 + 2 + 3$ true or false?" is also not a well-defined question.

More examples of simplification: When you write down sets, if the answer is $\{1\}$, do not write $\{1, 1\}$. And when the values can be ordered, write the elements of the set in ascending order. When writing polynomials, begin with the highest degree term.

When writing a counterexample, always write the simplest.