Homework 1

For problems 1-5, choose a) if the string is a valid C++ identifier, and b) if the string is not a valid C++ identifier.

1) day#1
2) week
3) DUE_DATE
4) age7
5) sum-2

For problems 6-10, use the following syntactic definitions. For each of problems 6-10, choose a) if the string is a valid Dwit, and b) if the string is not a valid Dwit.

\[
\begin{align*}
&Dwit := \{Twitnit\} + \\
&Twitnit := \{Twit\} + \{Nit\} + \\
&Twit := \{X \mid Y \mid Z\} \\
&Nit := \{1 \mid 2 \mid 3\}
\end{align*}
\]

Note: the plus sign means "one or more occurrences", and the vertical bar means "or". The ":=" symbol can be read as "is defined as".

6) XYZ
7) Y2Y
8) ZY2
9) XY23X1
10) 23Y

For problems 11-15, consider the following code fragment:

```c
int i, j;
double d;

i = 4;
j = 17;
d = 2.6;
```

For problems 11-15 determine the values of the following expressions. Remember if the answer is a double, it should contain a decimal point.
11) \( d \times j \)
   a) 44
   b) 44.0
   c) 44.2
   d) 34
   e) 34.0
   f) none of the above

12) \( i \% \frac{j}{i} \)
   a) 0
   b) 1
   c) 2
   d) 3
   e) error
   f) none of the above

13) \( \frac{j}{\text{double}(i)} \)
   a) 4
   b) 4.0
   c) 4.25
   d) 4.5
   e) none of the above

14) \( 3 \times \text{int}(d \times i) \% j \)
   a) 0
   b) 1
   c) 12
   d) 13
   e) none of the above

15) \( 2 \times d + \frac{i}{3} - \frac{j}{2} \)
   a) 0
   b) -2
   c) -1.8
   d) -1
   e) -3.6
   f) none of the above
For problems 16-19, consider the following code fragment. Then for each question determine the output. **NOTE:** <b> is used to indicate a blank in the answer choices.

double x = 14.3827;
cout << fixed << showpoint;

16) cout << "x is" << setw(5) << setprecision(2) << x << endl;
   a) x<b> is <b>14.38
   b) x<b> is 14.38
   c) x<b> is <b>14.38
   d) x<b> is <b><b>14
   e) none of the above

17) cout << "x is" << setw(8) << setprecision(2) << x << endl;
   a) x<b> is <b>14.38
   b) x<b> is 14.38<b><b><b>
   c) x<b> is <b>14.38
   d) x<b> is <b><b>14
   e) none of the above

18) cout << "x is" << setw(0) << setprecision(2) << x << endl;
   a) x<b> is <b>14.38
   b) x<b> is 14.38
   c) x<b> is <b>14.38
   d) x<b> is <b><b>14
   e) none of the above

19) cout << "x is" << setw(7) << setprecision(3) << x << endl;
   a) x<b> is <b>14.382
   b) x<b> is 14.383<b>
   c) x<b> is <b>14.383
   d) x<b> is 14.382<b>
   e) none of the above