

1. Type in and run the five programs presented in this chapter. Compare the output produced by each program with the output presented after each program in the text.

```
a = 25, b = 5, c = 10, and d = 7
a % b = 0
a % c = 5
a % d = 4
a / d * d + a % d = 25

Process returned 0 (0x0)    execution time : 0.019 s
Press any key to continue.
```

```
123.125000 assigned to an int produces 123
-150 assigned to a float produces -150.000000
-150 divided by 100 produces -1.000000
-150 divided by 100.0 produces -1.500000
(float) -150 divided by 100 produces -1.500000

Process returned 0 (0x0)    execution time : 0.028 s
Press any key to continue.
```

```
6 + a / 5 * b = 16
a / b * b = 24
c / d * d = 25.000000
-a = -25

Process returned 0 (0x0)    execution time : 0.018 s
Press any key to continue.
```

```
a - b = 98
b * c = 50
a / c = 4
a + b * c = 150
a * b + c * d = 300

Process returned 0 (0x0)    execution time : 0.021 s
Press any key to continue.
```

2. Which of the following are invalid variable names? Why?

[Click here to view code image](#)

Int	char	6_05
Calloc	Xx	alpha_beta_routine
floating	_1312	z
ReInitialize	_	A\$

3. Which of the following are invalid constants? Why?

[Click here to view code image](#)

123.456	0x10.5	0X0G1
0001	0xFFFF	123L
0Xab05	0L	-597.25
123.5e2	.0001	+12
98.6F	98.7U	17777s
0996	-12E-12	07777
1234uL	1.2Fe-7	15,000
1.234L	197u	100U
0xABCDL	0xabcu	+123

0x10.5 ඇන්ජේපීයිංගිරින්ගැනීමෙන් සැක්සුව

0X0G1 අයුරුදු නොවා ඇති ප්‍රාග්ධනයක්

98.7U ඩැඩ්ලැඩ්ලු තිබූ තුළු මුදලයි

17777s අයුරුදුවක්

0996 චැයෑලුජිංස්

1.2Fe-7 අන්තර්ගත් මුදලයි

15,000 අන්තර්ගත් මුදලයි

6. Write a program to evaluate the polynomial shown here:

$$3x^3 - 5x^2 + 6$$

for $x = 2.55$.

The screenshot shows the Code::Blocks IDE interface. The title bar says "main.c [000001] - Code::Blocks 20.03". The menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, and Help. The toolbar has various icons for file operations like Open, Save, and Build. The left sidebar shows a Management view with Projects, Workspace, and a selected item "000001". The main code editor window contains the following C code:

```
1 #include <stdio.h>
2
3 int main (void)
4 {
5     double x = 2.55;
6     printf("3x^3 - 5x^2 + 6 = %f\n", 3 * x * x * x - 5 * x * x + 6);
7
8     return 0;
9 }
10
11
```

The screenshot shows the terminal window of Code::Blocks. The title bar says "main.c [000001] - Code::Blocks 20.03". The command prompt shows the path "C:\Users\STUDENT\Downloads\work111\111\000001\bin\Debug\000001.exe". The output window displays the following text:

```
3x^3 - 5x^2 + 6 = 23.231625

Process returned 0 (0x0)   execution time : 0.020 s
Press any key to continue.
```

8. To round off an integer i to the next largest even multiple of another integer j , the following formula can be used:

$$\text{Next_multiple} = i + j - i \% j$$

For example, to round off 256 days to the next largest number of days evenly divisible by a week, values of $i = 256$ and $j = 7$ can be substituted into the preceding formula as follows:

[Click here to view code image](#)

$$\begin{aligned}\text{Next_multiple} &= 256 + 7 - 256 \% 7 \\ &= 256 + 7 - 4 \\ &= 259\end{aligned}$$

The screenshot shows the terminal window of Code::Blocks. The title bar says "main.c [000001] - Code::Blocks 20.03". The command prompt shows the path "C:\Users\STUDENT\Downloads\work111\111\000001\bin\Debug\000001.exe". The output window displays the following text:

```
Answer = 378
Answer = 12282
Answer = 1000

Process returned 0 (0x0)   execution time : 0.014 s
Press any key to continue.
```