APCS P. Sem Review One Name _____

1. Which of the following best characterizes a high-level programming language?

(A) A language comprised entirely of hardware logic gates

(B) A language in which each instruction corresponds directly to an instruction in a computer's machine co

(C) A language that is easy for a computer to interpret but difficult for humans to interpret

(D) A language that uses multiple abstractions to manage complexity

2 A smartphone stores the following data for each photo that is taken using the phone.

- The file name of the photo
- The date and time the photo was taken
- The geographic location where the photo was taken

Assume that all of the photos that have been taken on the phone are accessible. Which of the following can be determined using the photo data described above?

I. The number of photos that were taken at a particular geographic location

II. The number of photos that were taken in the last year

III. The name of the person who took the most recent photo

(A) III only

(B) I and II only

(C) I and III only

(D) I, II, and III

3. Which of the following best describes one of the benefits of using an iterative and incremental process of program development?

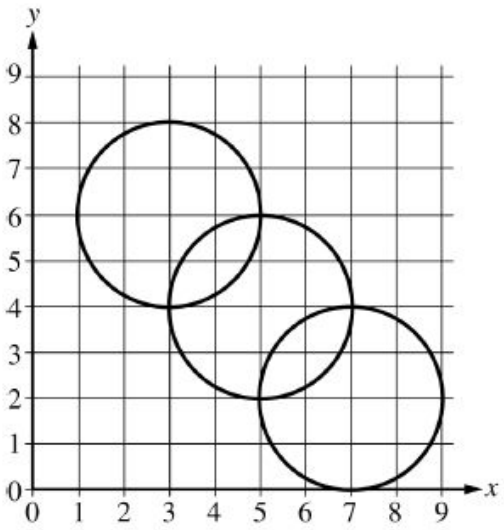
(A) It allows programmers to implement algorithmic solutions to otherwise unsolvable problems.

(B) It eliminates the need for programmers to test completed programs.

(C) It enables programmers to create programs that use the lowest-level abstractions available.

(D) It helps programmers identify errors as components are added to a working program.

4 The procedure `DrawCircle (x, y, r)` can be used to draw a circle on a coordinate grid. The circle is centered at the coordinate `(x, y)` and has a radius of `r` units. The procedure will be used to draw the following figure on a coordinate grid.



Which of the following code segments can be used to draw the figure?

(A)
```
xPos ← 3
yPos ← 6
REPEAT 3 TIMES
{
   DrawCircle (xPos, yPos, 2)
   xPos ← xPos + 2
   yPos ← yPos + 2
}
```

(B)
```
xPos ← 3
yPos ← 6
REPEAT 3 TIMES
{
   DrawCircle (xPos, yPos, 2)
   xPos ← xPos + 2
   yPos ← yPos - 2
}
```

(C)
```
xPos ← 7
yPos ← 2
REPEAT 3 TIMES
{
   DrawCircle (xPos, yPos, 2)
   xPos ← xPos + 2
   yPos ← yPos + 2
}
```

(D)
```
xPos ← 7
yPos ← 2
REPEAT 3 TIMES
{
   DrawCircle (xPos, yPos, 2)
   xPos ← xPos + 2
   yPos ← yPos - 2
}
```

A social media site allows users to send messages to each other. A group of researchers gathered user data for the first 10 years of the site's existence. Some of the data are summarized in the table below, along with some of the company milestones.

Year	Milestone	Total Number of Registered Users (in millions)	Average Number of Active Daily Users (in millions)	Average Number of Daily Messages Sent Per User	Average Number of Characters Per Message
1	Web site launched	25.4	0.8	3.6	360
2		26.0	0.7	3.5	362
3		26.5	0.6	3.5	358
4		26.9	0.6	3.4	360
5	Mobile app released	27.4	0.9	3.3	269
6		28.0	0.9	3.4	242
7		28.6	1.1	3.5	195
8		29.1	1.2	3.5	176
9		29.6	1.1	3.6	104
10		30.2	1.1	3.6	96

5 The researchers noticed that the total number of registered users appears to be increasing at about a constant rate. If this pattern continues, which of the following best approximates the total number of registered users, in millions, in year 12 (two years after the last entry in the table) ?

(A) 30.6

(B) 31.2

(C) 31.8

(D) 32.4

6 Which of the following hypotheses is most consistent with the data in the table?

(A) The mobile app release did not have any effect on the average number of daily messages sent per user.

(B) The mobile app release discouraged new user registration on the site.

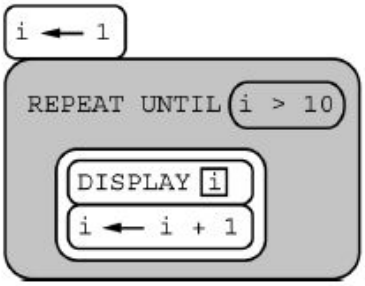
(C) The mobile app release led to users being less frequently active on the site.

(D) The mobile app release led to users tending to write shorter messages.

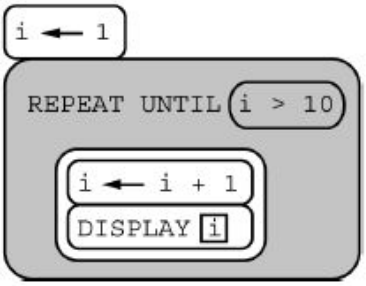
7.

Consider the two programs below.

Program A:



Program B:



Which of the following best compares the values displayed by programs A and B?

(A) Program A and program B display identical values.

(B) Program A and program B display the same values in different orders.

(C) Program A and program B display the same number of values, but the values differ.

(D) Program A and program B display a different number of values.

8.

Which of the following is a true statement about Internet communication?

(A) Devices from different manufacturers are required to run the same operating system to communicate over the Internet.

(B) Every device connected to the Internet is assigned a digital certificate by a certificate authority.

(C) Every device connected to the Internet is assigned an Internet protocol (IP) address.

(D) Every device connected to the Internet requires a high-bandwidth connection to enable redundant routing to each device.

9.

A user reads reviews of a popular artist's new album and then downloads the album from the Web site of a licensed online music seller. Which of the following is LEAST likely to be a consequence of this action?

(A) Advertisements for the artist's other albums will be displayed when the user visits a different Web site.

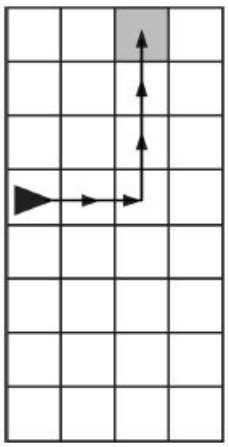
(B) Album reviews from other people who live nearby will be displayed to the user.

(C) Similar artists will be recommended to the user based on the user's download selection.

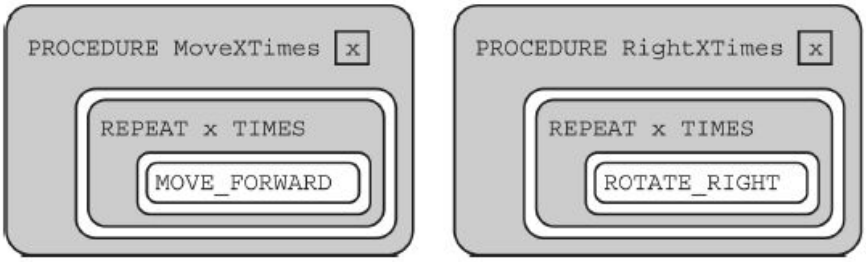
(D) The user will be in violation of the Digital Millennium Copyright Act (DMCA).

10.

The following question uses a robot in a grid of squares. The robot is represented by a triangle, which is initially facing right.



Consider the procedures below.



Which of the following code segments will move the robot to the gray square?

(A)

(B)

(C)

(D)