

AP CS A

Unit 1. Primitive Types. Programs

1. Complete this program so that the user can enter the length and width of a rectangle, as ints, and the program will print out the area and perimeter.

```
import java.util.Scanner;

public class Main{
    public static void main( String [] args ){
        Scanner sam = new Scanner( System.in );
        System.out.println( "Enter the length " );
        int length = sam._____;
        System.out.println( "Enter the width " );
        int width = _____.nextInt();
        int area = _____;
        int perimeter = _____;
        System.out.println( "The area is " + area + " square units.");
        System.out.println( "The perimeter is " + perimeter + " units." );
    }
}
```

Here is what the program should look like if you enter a 5 followed by an 11.

```
Enter the length
5
Enter the width
11
The area is 55 square units.
The perimeter is 32 units.
```

To run your program, click the run button. If there are syntax errors, then fix them and try again. Once the program appears to be running correctly, click the Submit button.

2. Complete the program so it calculates and displays the area of a trapezoid. The user must enter the height and two bases as integers but the program calculates and displays the area as a double.

```
import java.util.Scanner;

public class Main{
    public static void main( String [] args ){
        Scanner cindy = new Scanner( System.in );
        System.out.println( "Enter the height " );
        int height = _____
        System.out.println( "Enter one base " );
        int b1 = _____
        System.out.println( "Enter the other base " );
        int b2 = _____

        double area = _____
        System.out.println( "The area is " + area + " square units.");
    }
}
```

Here is one sample run:

```
Enter the height
5
Enter one base
2
Enter the other base
3
The area is 12.5 square units.
```

3. Complete the program so the user can enter three numbers and see their average. Fill in the blanks and then add two more lines of code to complete the program.

```
import java.util.Scanner;

public class Main{
    public static void main( String [] args ){
        Scanner sc = new Scanner( System.in );
        System.out.println( "Enter three numbers" );
        double n1 = sc._____
        double n2 = sc._____
        double n3 = sc._____
        and two more lines of code
    }
}
```

Here is one sample run.

```
Enter three numbers
8.3
-0.6
5.8
The average is 4.5
```

4. This program should convert degrees Fahrenheit to degrees Celsius. Fahrenheit should be an integer value, but the result is a decimal. For example:

```
Enter the temperature in Fahrenheit
212
212 degrees F = 100.0 degrees C
```

The only code given is:

```
public class Main{
    public static void main( String [] args ){

    }
}
```

5. Have the user enter a decimal and then cast it to an int. The output should look something like this:

```
Enter a decimal
11.09
11.09 cast to an int is 11
```

Here is another example:

```
Enter a decimal
281.524
281.524 cast to an int is 281
```

6. Write a program where the user enters a positive decimal and the program rounds it off correctly. For example:

```
Enter a decimal
14.5
14.5 rounded off is 15
```

Hint. You will need to add something the decimal and then cast the result to an int.

7. One flower costs \$7 but a dozen flowers cost \$70. Write a program where the user enters the number of flowers and the program displays the cost. For example:

```
How many flowers?
27
27 flowers cost $161
```

8. Write a program where the user enters a positive integer that represents a certain number of hours. The program then displays a message that displays the number in terms of days and hours. You will need to use the mod operator. For example:

Hours?

103

103 hours = 4 days and 7 hours

9. Write a program where the user enters a two-digit positive integer and the program adds the two digits together. Use the mod operator to get one digit and integer division to get the other digit. For example:

Enter a positive, two-digit number

26

2 plus 6 equals 8

10. Complete the program so that the user enters a number of feet and the program calculates how many miles that is. For example:

How many feet?

6000

6000 feet = 1 mile(s) and 720 feet

There are 5,280 feet in a mile.

11. Balloons cost \$2 each or \$7 for a pack of 5. Write a program where the user enters the number of balloons and the program calculates and displays the cost of those balloons. For example:

How many?

6

6 balloons cost \$9