

III. Snowperson (20 Points) (Note: Do not use an Applet.)

- 1) Plan the program below by using **graph** paper located in the back folder of all the intro labs
- 2) Use a background color of your choice other than black (the default color), white, or red.
(Hint: Use a filled rectangle.)
- 3) Make a three filled-in white circle, non-overlapping but touching, snowman (snowperson if you are politically correct) where the middle belly circle is in the very center of the screen
Note 1: Fill in the circles.
Note 2: Leave room *directly* above the figure to draw a sun, which will be done in a later program.
- 4) Have two red non-filled circular eyes
- 5) Have an orange circular filled nose
- 6) Have a green mouth (line or arc)
- 7) Have a stove top rectangular hat
(Note: Use the color of your choice other than the background color.)
- 8) Have the brim of the hat be a line of the same color as the hat

Further specifications:

- 1) Add comments for your name, class hour, the date, and program name.
- 2) Save as **P1ch2prg3**, compile, Run, and debug.
- 3) Do not use an Applet.

Extra Credit: Have black eyebrows in the shape of an arc

When perfect, show your teacher the coding and output (run).

(teacher signature)

Turn in this sheet!

II. Circle Program Two (10 Points) (Note: Start a new program titled **P1ch2prg2**)

Purpose: Given the area of a circle, as a constant of 122 square cm, find the radius.

Input: Enter the area of 122 as an assignment statement and the value of PI (3.14159) as a constant.

Output should look like:

```
area = 122
radius = 6.232
```

Further specifications:

- 1) Use appropriate comments in your program:
 - a) Name of program
 - b) Your name
 - c) Class hour
- 2) Use meaningful variables and proper indentation
- 3) Do not use `read` or `readln`
- 4) Round the radius to 3 decimal places
Note: There should be no blank spaces inside of quote marks to create the space after the equal sign. Instead, the single blank space will result due to setting the *correct* field width.
- 5) Use the `hsa` imported package to do the fieldwidth formatting.
- 6) Save as **P1ch2prg2**, Run, and debug.

When perfect, show your teacher the coding and output (run).

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I. Circle Program (Pts: 20) (Note: Start a new program titled: **P1ch2prg1**)

Purpose: Give the radius and calculate the diameter, circumference and area of a circle.

Input: Do not use read or readln but input into the computer's memory the radius as an assignment statement and the value of PI (3.14159) as a constant. Note: Use the correct data types to get the output below. Do not use float but use double for the data type of floating point decimal numbers.

Output should look *exactly* like:

1234567890123456789012345 (This row is for spacing and not to be output)

```
radius =          6.75000
diameter =        13.50000
circumference =  42.41146
area =            143.13869
```

Further specifications:

- 1) Use appropriate comments in your program:
 - a) Name of program
 - b) Your name
 - c) Class hour
- 2) Use meaningful variables and proper indentation
- 3) When calculating the area use the radius squared (not radius times radius). Use the appropriate method to do this calculation without getting an error.
- 4) Recall: $\text{area} = \pi r^2$; $\text{circumference} = 2 \pi r$; $\text{diameter} = 2 r$;
- 5) Round to 5 decimal places

Save as **P1ch2prg1** , Run, and debug.

When perfect, show your teacher the coding and output (run).

(teacher signature)

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