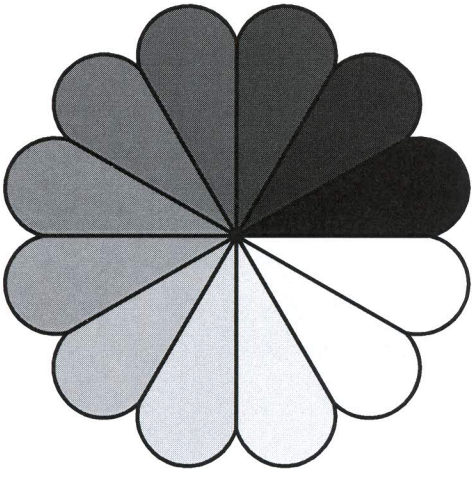
Quiz #1 (CSE4190.410)

September 19, 2011 (Monday)

Name: _____ **Dept:** _____ **ID No:** _____

1. (10 points) Fill in the blanks in the following PostScript program.



```
/inch { 72 mul } def
/sine15 {15 sin} def

1 inch 1 inch scale
2 6 translate

/wedge
{ newpath
        0 0 moveto
        1 0 translate
        15 rotate
        0 sine15 translate
        ________________  arc (+2)
        0 sine15 neg translate
        15 neg rotate
        -1 0 translate
        closepath
} def

0.02 setlinewidth

1 1 12
{ ___________ setgray  (+2)

wedge __________  (+2)

wedge __________  stroke  (+2)

___________ (+2)
} for

showpage
```

2. (5 points) Using the cross-product operation discussed in class, answer the following questions. What is the line that is determined by two points $(1, 2)$ and $(3, 7)$? What is its intersection with another line $x + y + 1 = 0$?

$(1,2,1) \times (3,7,1) = (-5,2,1)$

$\therefore -5x+2y+1=0$

$(-5,2,1) \times (1,1,1) = (1,6,-7)$

$= (-\frac{1}{7}, -\frac{6}{7}, 1)$

$\therefore (-\frac{1}{7}, -\frac{6}{7})$

3. (5 points) What is the perspective projection of a point $\mathbf{p} = (3, 7)$ from the view point $\mathbf{v} = (1, 2)$ onto the line $x + y + 1 = 0$?

$(-\frac{1}{7}, -\frac{6}{7})$