The lab task

Download the file `mat140-lab2.hlpl`. I have created a point `P` and two vectors `u` and `v` for you to use. Their values change with each iteration of the `while` loop. Thus if you type the line

```
DrawPoint(P);
```

inside the student code section of the file, you should see a small circle wander around the graphical output window. Two asides here. First, `DrawPoint` is not a built–in HLPL function.

Drawing a circle is not as straight–forward as one might wish, so I have written the `DrawPoint` function as a more convenient way of drawing a circle. Second, the path that the point follows is called a *Lissajous curve,* and is constructed using sine functions of various periods. You can change the rate at which the point moves by altering the value of the variable `speed`. In particular, if you find the motion annoying, try setting the speed to zero.

The coordinates of the vectors `u` and `v` are also given by Lissajous curves. By typing

```
point2d O = [0,0];
line(O,O+u);
line(O,O+v);
```

you can see how the two vectors change with each iteration.

Your task for this lab is to construct a cute geometric figure from the point `P` and the vectors `u` and `v` using only point and vector operations. One of the simplest figures you can form is a the triangle with vertices P, $P + \vec{u}$, and $P + \vec{v}$.
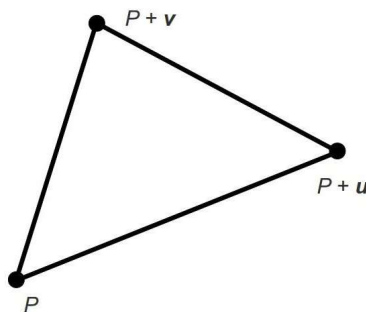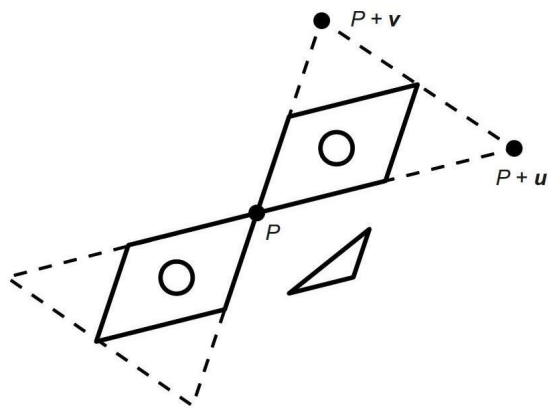

Try drawing the following figures (do not draw the dashed lines, they are only to indicate how the figure is formed).
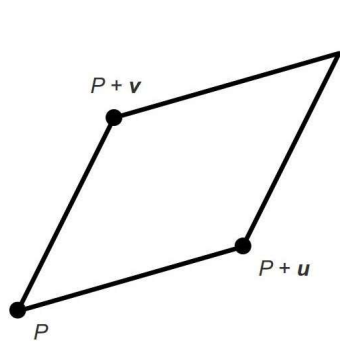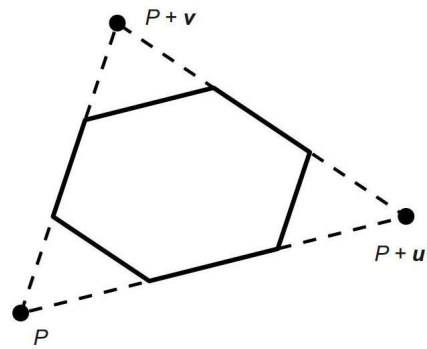
parallelogram
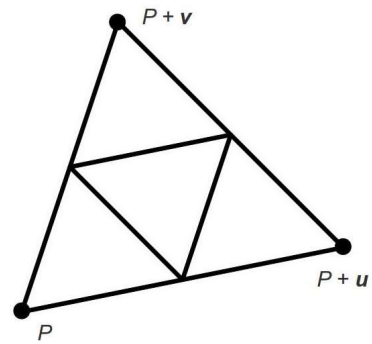
subdivision

face

hexagon

For full credit, you must draw the following figure (again, don't draw the dashed lines).