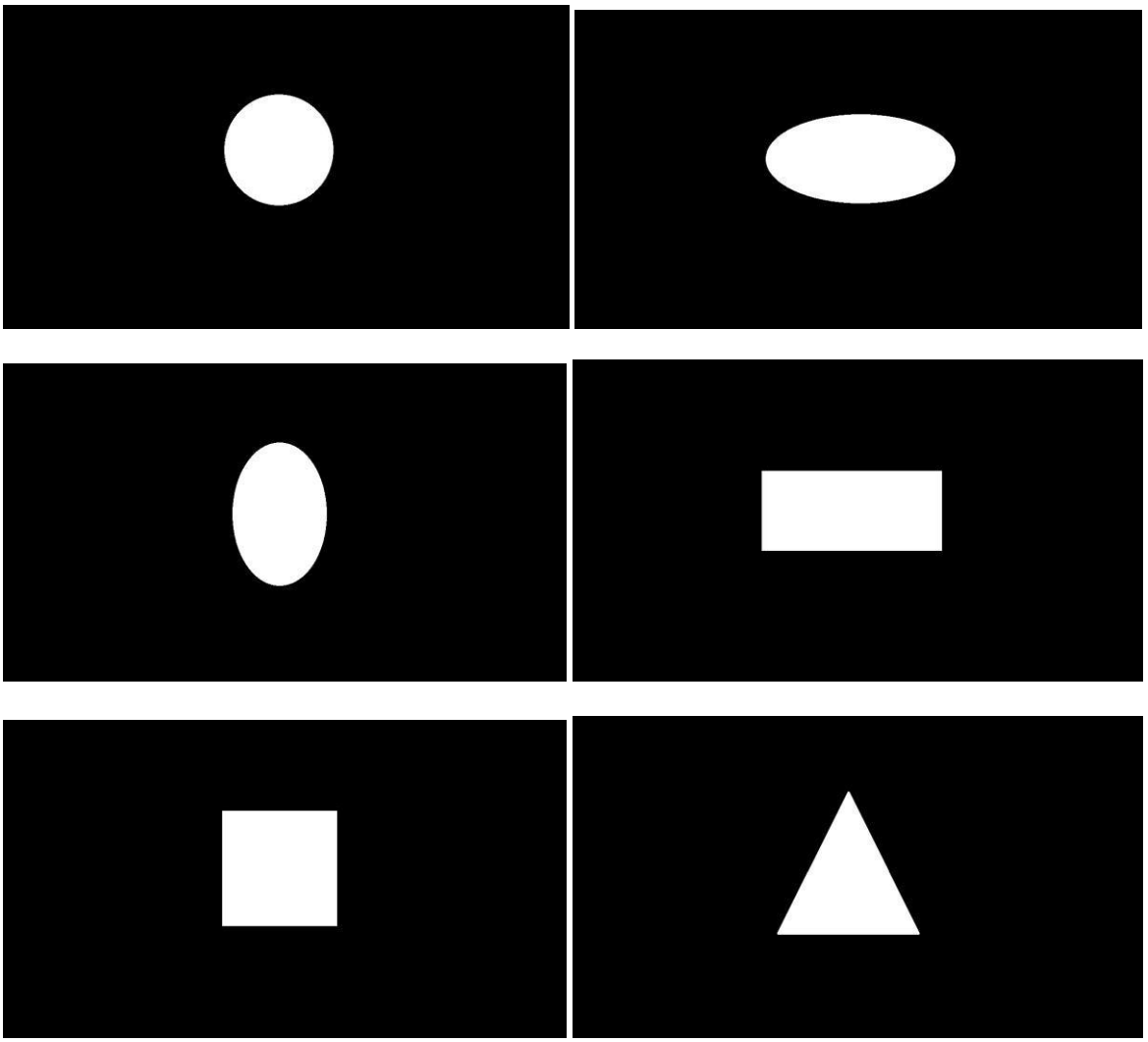


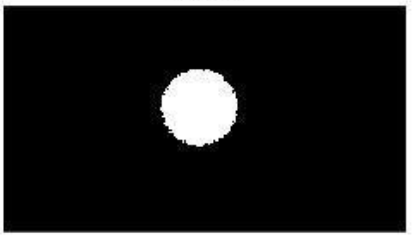
CODE:

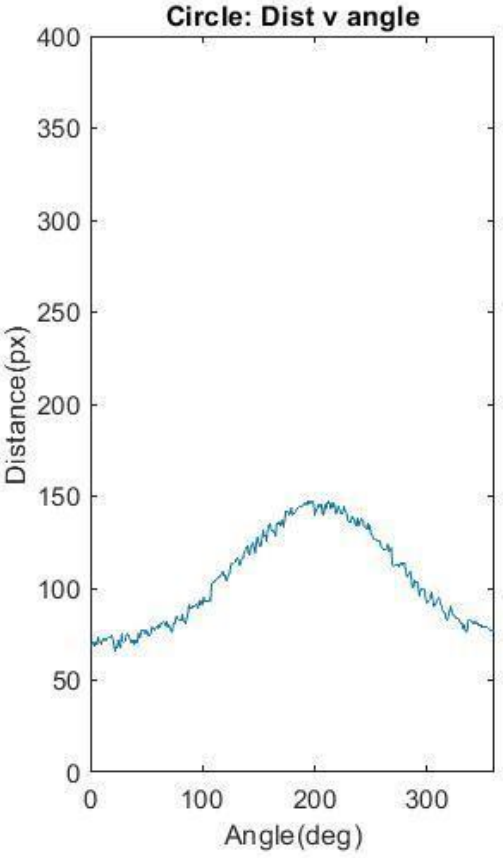
```
%reading the images
circle=rgb2gray(imread('circle.jpg'))==255;
triangle=rgb2gray(imread('triangle.jpg'))==255;
h_ellipse=rgb2gray(imread('oval_h.jpg'))==255;
v_ellipse=rgb2gray(imread('oval_v.jpg'))==255;
square=rgb2gray(imread('square.jpg'))==255;
h_rect=rgb2gray(imread('rectangle.jpg'))==255;
%calculating distance versus angle using function written
below
aoscircle=dva(circle);
```

```
aostriangle=dva(triangle);
aosh_ellipse=dva(h_ellipse);
aosv_ellipse=dva(v_ellipse);
aossquare=dva(square);
aosh_rect=dva(h_rect);
%plotting
figure
subplot(121);
imshow(circle); title('Circle')
subplot(122);
plot((1:360), aoscircle); title('Circle: Dist v angle');
axis([0 360 0 400]); xlabel('Angle(deg)');
ylabel('Distance(px)');
figure
subplot(121);
imshow(triangle); title('Triangle')
subplot(122);
plot((1:360), aostriangle); title('Triangle: Dist v
angle'); axis([0 360 0 400]); xlabel('Angle(deg)');
ylabel('Distance(px)');
figure
subplot(121);
imshow(h_ellipse); title('Horizontal Oval')
subplot(122);
plot((1:360), aosh_ellipse); title('Horizontal Ellipse:
Dist v angle'); axis([0 360 0 400]);
xlabel('Angle(deg)'); ylabel('Distance(px)');
figure
subplot(121);
imshow(v_ellipse); title('Verticle Oval')
subplot(122);
plot((1:360), aosv_ellipse); title('Verticle Ellipse:
Dist v angle'); axis([0 360 0 400]);
xlabel('Angle(deg)'); ylabel('Distance(px)');
figure
subplot(121);
imshow(square); title('Square')
subplot(122);
plot((1:360), aossquare); title('Square: Dist v angle');
axis([0 360 0 400]); xlabel('Angle(deg)');
ylabel('Distance(px)');
figure
subplot(121);
imshow(h_rect); title('Rectangle')
subplot(122);
```

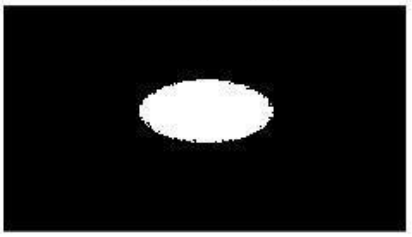
```
plot((1:360), aosh_rect); title('Rectangle: Dist v
angle'); axis([0 360 0 400]); xlabel('Angle(deg)');
ylabel('Distance(px)');
%function to calculate angle to distace
function dist=dva(im)
    [cx,cy]=size(im);
    cx=cx/2; cy=cy/2;
    dist=0*(0:359);
    for angle=1:360
        xinc=cos((angle*pi)/180);
        yinc=sin((angle*pi)/180);
        i=0;
        while 0==0
            x=round(cx+i*xinc);
            y=round(cy+i*yinc);
            if im(x, y) == 0
                break;
            end
            i=i+1;
        end

        dist(angle)=i;
    end
end
```

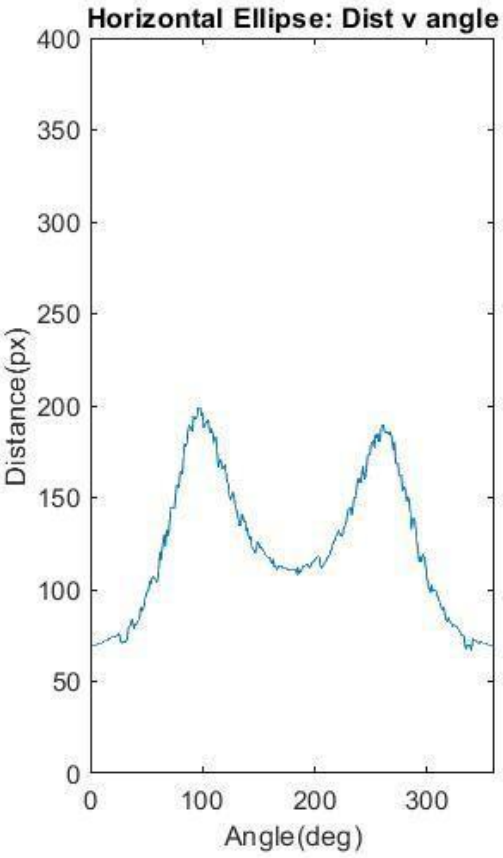
Circle



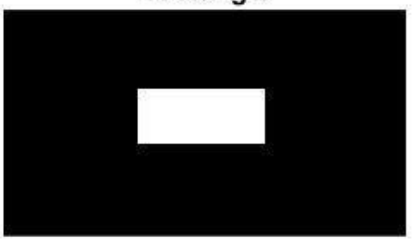


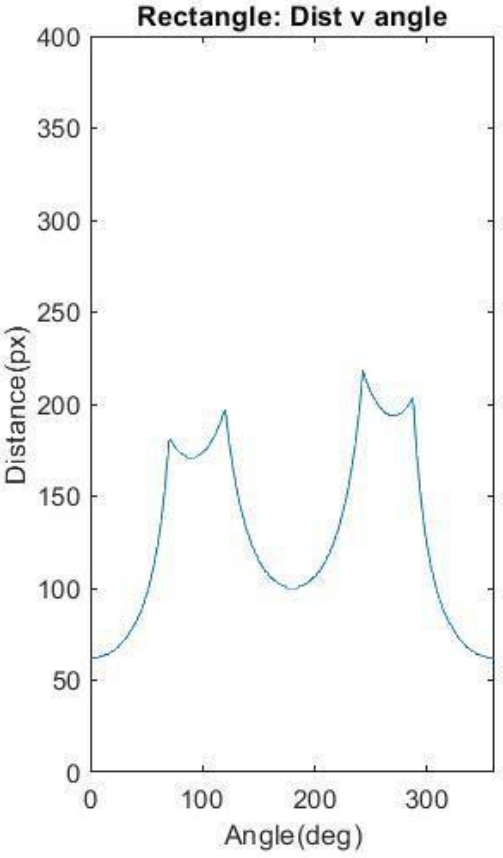
Horizontal Oval



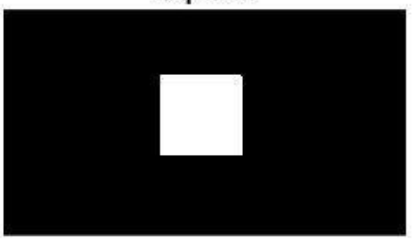


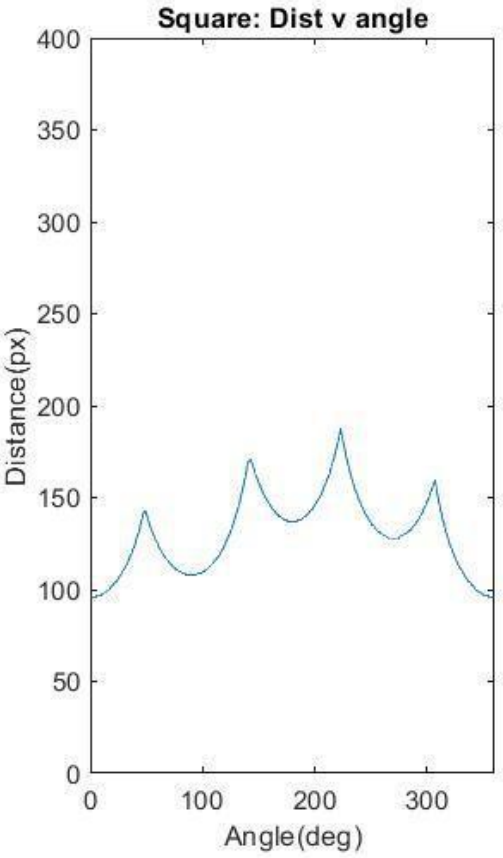
Rectangle



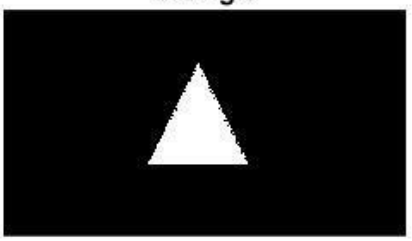


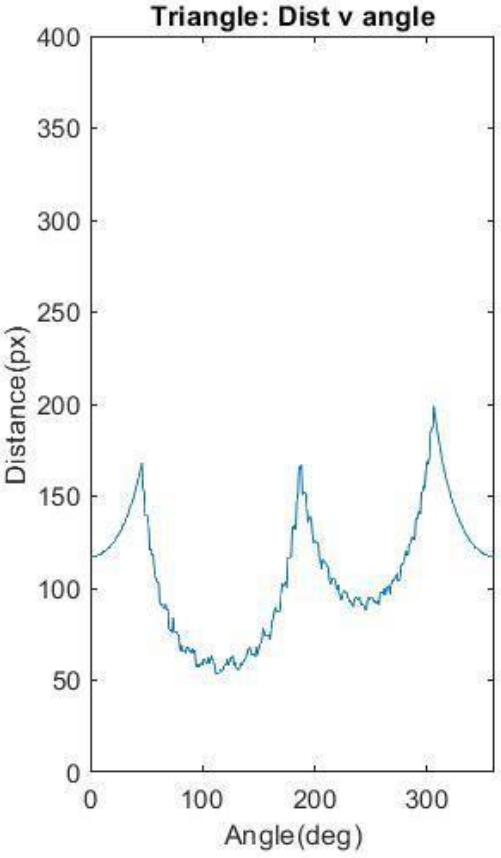
Square





Triangle





Verticle Oval