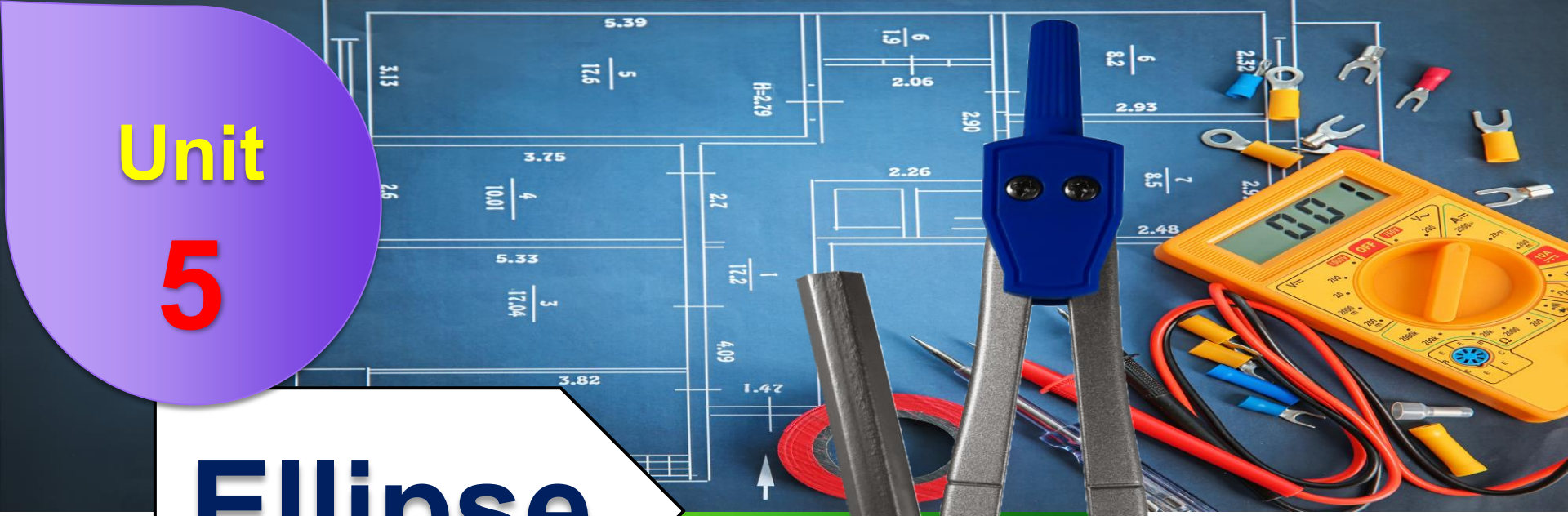
Unit

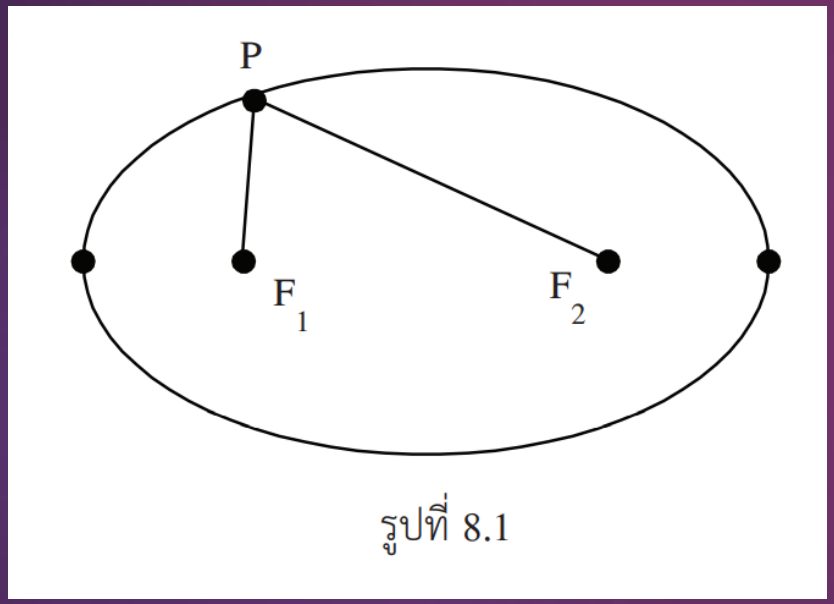
5

Ellipse



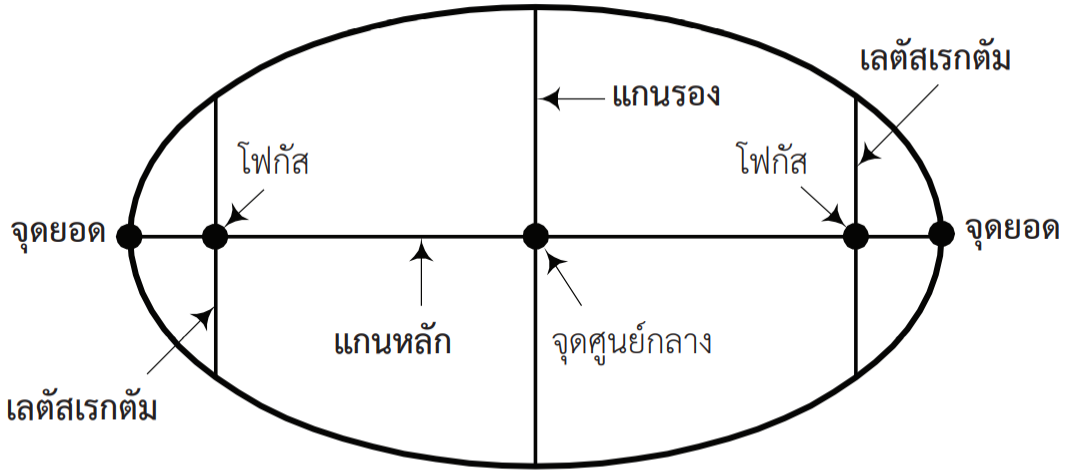
Ellipse

is the set or path of points that are the sum of their distances from points on the ellipse. to two fixed points (Fixed Point) as constant values. These two points are called focus points (Focus).



รูปที่ 8.1

$|PF_1| + |PF_2|$ = ค่าคงตัว



รูปที่ 8.2

The center of the ellipse is the midpoint between the two focal points.The major axis of an ellipse is the straight line passing through both focal points. The end point is at the circumference of the ellipse.The minor axis of an ellipse is a straight line that is perpendicular to the principal axis. and passes through the center of the ellipse. Its two ends are at the circumference of the oval.The vertex of an ellipse is the point where the main axis intersects with the ellipse.

An ellipse with the center at the origin.

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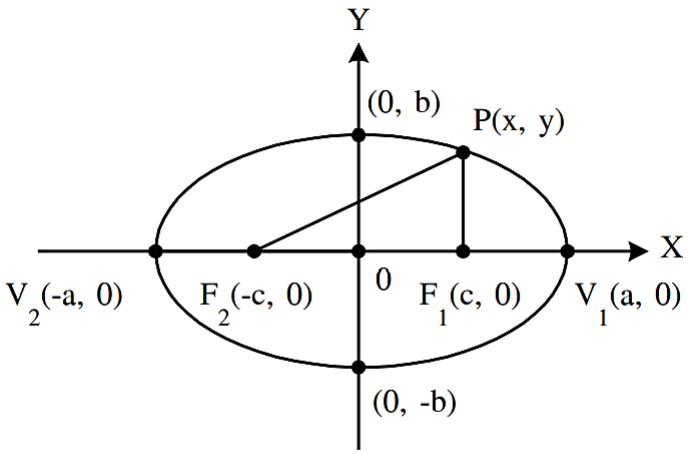
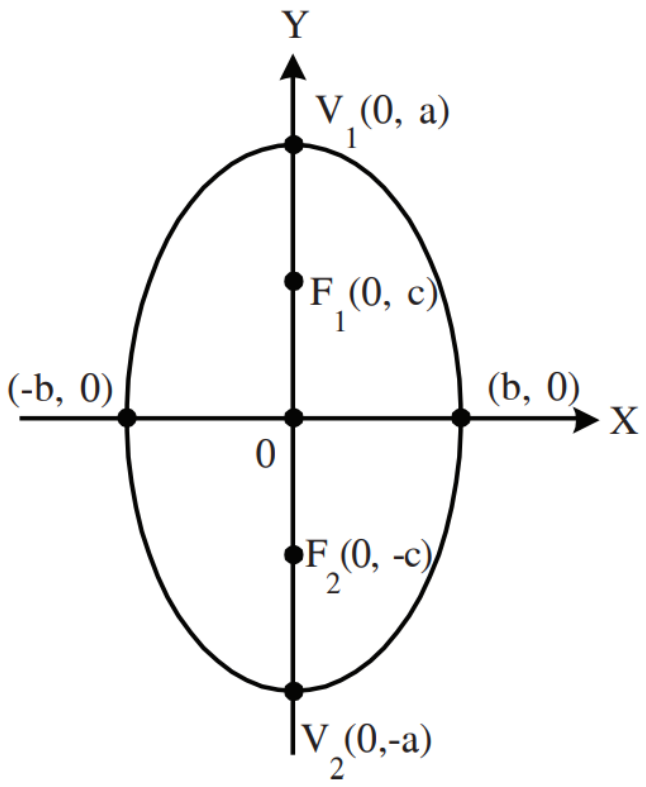
An ellipse with the principal axis on the X axis.



รูปที่ 8.3

The vertices are V_1 (a, 0) and V_2 (-a, 0).The focus points are F_1 (c, 0) and F_2 (-c, 0).The center point is (0, 0).The main shaft length is 2a.The length of the minor axis is 2b.The length of letus rectum is [(2b)]^2/a.and a^2 = b^2 + c^2

An ellipse with the principal axis on the Y axis.



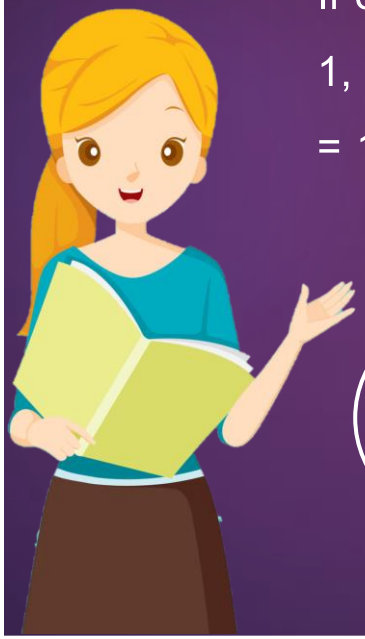
The vertices are V_1 (0, a) and V_2 (0,-a).The focus points are F_1 (0, c) and F_1 (0, -c).The center point is (0, 0).The main shaft length is 2a.The length of the minor axis is 2b.The length of letus rectum is $2b^2/a$.and $a^2 = b^2 + c^2$

Excentric City Value (Eccentricity) or eccentricity of the ellipse.

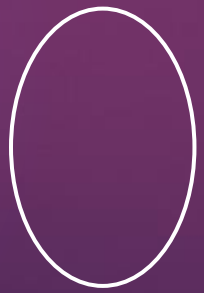
It is a value that is related to the appearance of the ellipse, which is represented by e.

$$e = \frac{c}{a} \quad \text{เมื่อ } 0 < e < 1$$

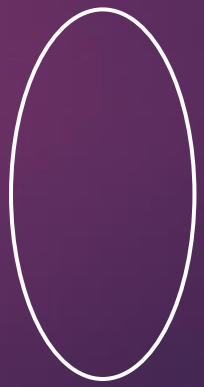
If e is close to 0, the ellipse will be almost circular. If e is close to 1, the ellipse will be almost straight. If e = 0, it will be circular. If e = 1, it will be a straight line.



e = 0



e = 0.20

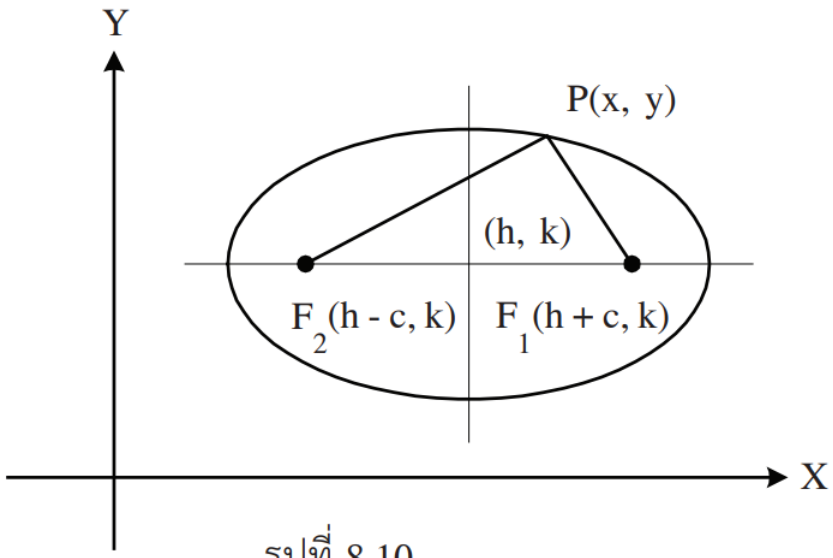


e = 0.80

e = 1

An ellipse centered at the point (h, k).

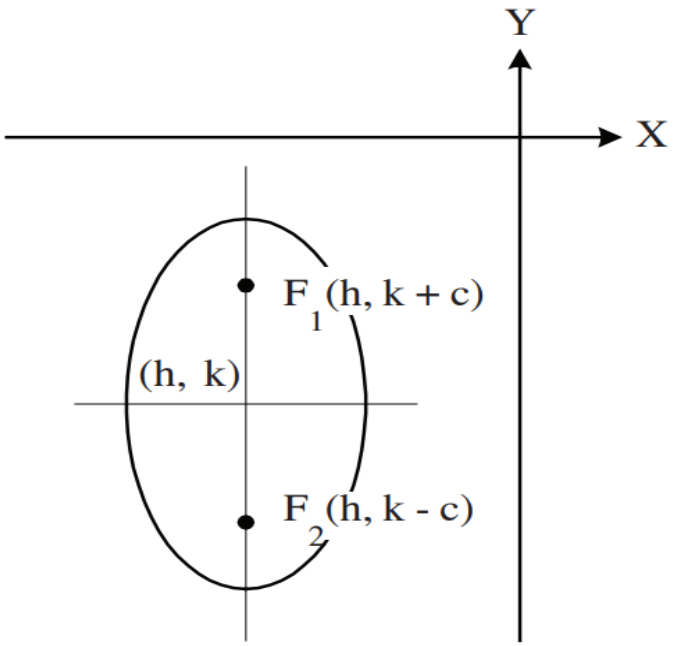
An ellipse centered at the point (h, k) and whose principal axis is parallel to the X axis.



รูปที่ 8.10

The standard form equation is $\frac{(X-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$

An ellipse centered at the point (h, k) and whose principal axis is parallel to the Y axis.



รูปที่ 8.11

The standard form equation is $\frac{(X-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1$