$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ 의 기울기가 m인 접선의 방정식을 구하여라.

(Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$)

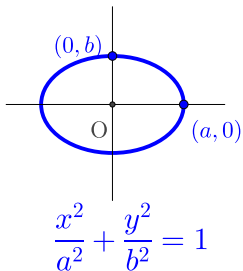# Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$(0, b)$

O

$(a, 0)$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$
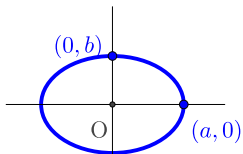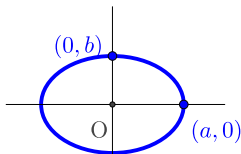
$(0, b)$

$(a, 0)$

O

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

m

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

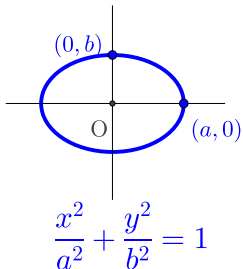$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$
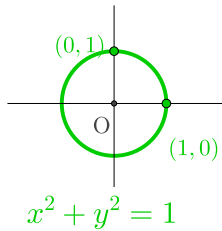
$$m$$

$$\frac{(ax)^2}{a^2} + \frac{(by)^2}{b^2} = 1$$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$(0, b)$
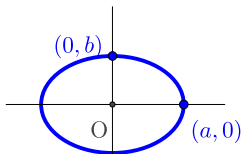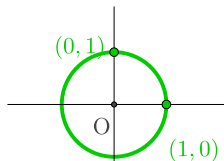
O

$(a, 0)$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

m

$(0, 1)$

O

$(1, 0)$

$$x^2 + y^2 = 1$$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$(0, b)$

O

$(a, 0)$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

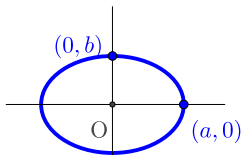$$m = \frac{\triangle y}{\triangle x}$$

$(0, 1)$

O

$(1, 0)$

$$x^2 + y^2 = 1$$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$(0, b)$

O

$(a, 0)$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$m = \frac{\triangle y}{\triangle x}$$

$(0, 1)$

O

$(1, 0)$

$$x^2 + y^2 = 1$$

$$\frac{\frac{1}{b}\triangle y}{\frac{1}{a}\triangle x}$$

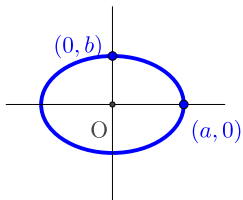# Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$
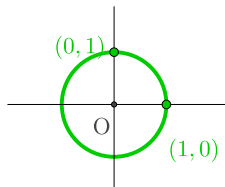
$(0, b)$

O

$(a, 0)$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$m = \frac{\triangle y}{\triangle x}$$

$(0, 1)$

O

$(1, 0)$

$$x^2 + y^2 = 1$$

$$\frac{\dfrac{1}{b}\triangle y}{\dfrac{1}{a}\triangle x} = \frac{a\triangle y}{b\triangle x}$$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$(0, b)$

O

$(a, 0)$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$m = \frac{\triangle y}{\triangle x}$$

$(0, 1)$

O

$(1, 0)$

$$x^2 + y^2 = 1$$

$$\frac{\frac{1}{b}\triangle y}{\frac{1}{a}\triangle x} = \frac{a\triangle y}{b\triangle x} = \frac{a}{b}m$$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$
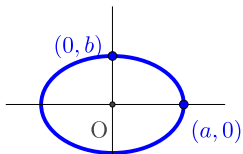
$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$
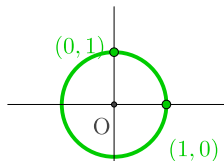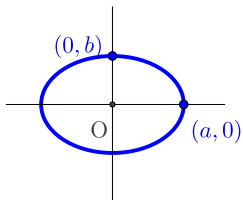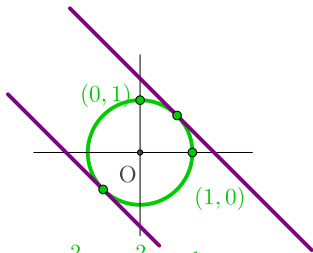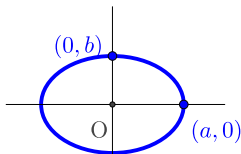
$$m = \frac{\triangle y}{\triangle x}$$

$$x^2 + y^2 = 1$$

$$\frac{\frac{1}{b}\triangle y}{\frac{1}{a}\triangle x} = \frac{a\triangle y}{b\triangle x} = \frac{a}{b}m$$

$$y = \frac{a}{b}mx \pm \sqrt{\left(\frac{a}{b}m\right)^2 + 1}$$

Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$m = \frac{\triangle y}{\triangle x}$$

$$\frac{y}{b} = \frac{a}{b} m \frac{x}{a} \pm \sqrt{\left(\frac{a}{b} m\right)^2 + 1}$$

$$x^2 + y^2 = 1$$

$$\frac{\frac{1}{b}\triangle y}{\frac{1}{a}\triangle x} = \frac{a\triangle y}{b\triangle x} = \frac{a}{b} m$$

$$y = \frac{a}{b} mx \pm \sqrt{\left(\frac{a}{b} m\right)^2 + 1}$$

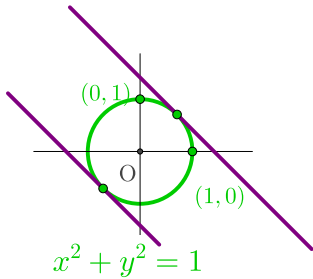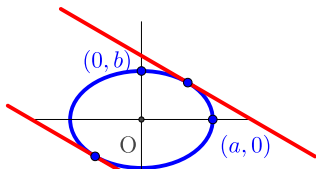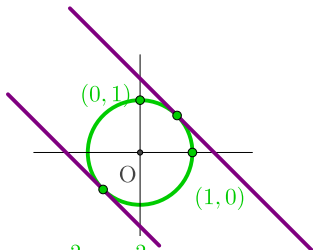# Find the equation for the tangent line having slope m to $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$m = \frac{\triangle y}{\triangle x}$$

$$y = mx \pm \sqrt{a^2 m^2 + b^2}$$

$$x^2 + y^2 = 1$$

$$\frac{\dfrac{1}{b}\triangle y}{\dfrac{1}{a}\triangle x} = \frac{a\triangle y}{b\triangle x} = \frac{a}{b}\, m$$

$$y = \frac{a}{b}\, mx \pm \sqrt{\left(\frac{a}{b}\, m\right)^2 + 1}$$

Github:
https://min7014.github.io/math20220511001.html

Click or paste URL into the URL search bar,
and you can see a picture moving.