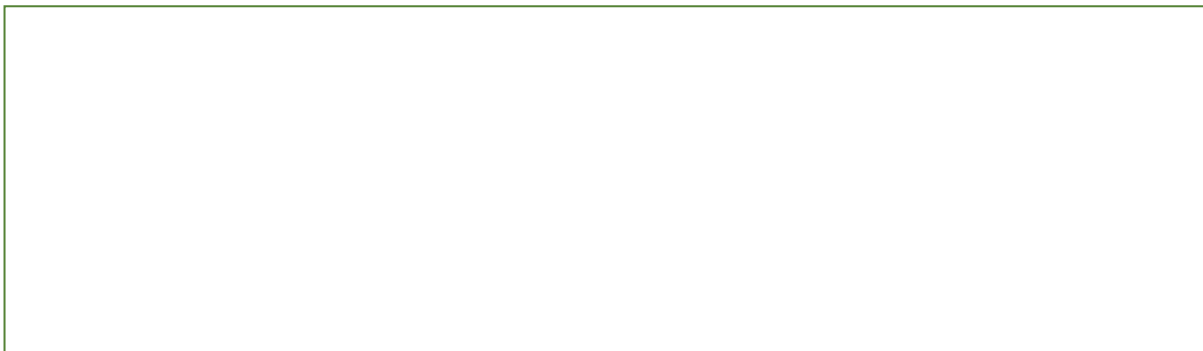
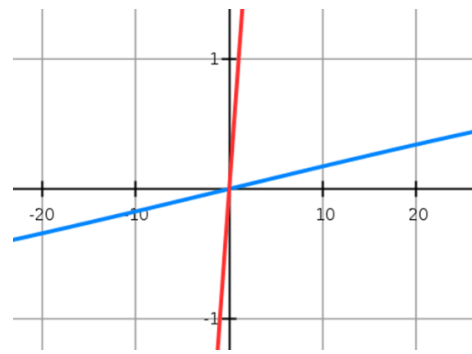
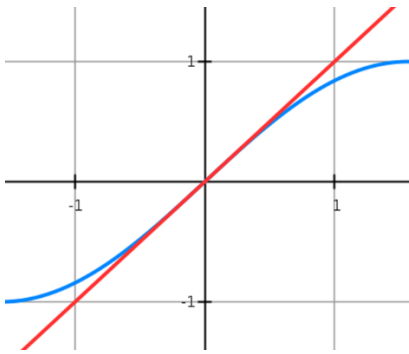


## Small Angle Approximations



### Example

When  $\theta$  is small, find the approximate value of:

a)  $\frac{\sin 2\theta + \tan \theta}{2\theta}$

b)  $\frac{\cos 4\theta - 1}{\theta \sin 2\theta}$

Example

a) Show that, when  $\theta$  is small,

$$\sin 5\theta + \tan 2\theta - \cos 2\theta \approx 2\theta^2 + 7\theta - 1$$

b) Hence state the approximate value of  $\sin 5\theta + \tan 2\theta - \cos 2\theta$  for small values of  $\theta$ .