Exercise 15

For the following exercises, points $P(-1,-1)$ and $Q(x,y)$ are on the graph of the function $f(x)=\frac{1}{x}$.

Use the value in the preceding exercise to find the equation of the tangent line at point P.

Solution

The slope of the tangent line to f at $x=-1$ is -1, and this line passes through $(-1,-1)$.

$$y-(-1)=-1[x-(-1)]$$

$$y+1=-(x+1)$$

$$y+1=-x-1$$

$$y=-x-2$$

Below is the graph of $y=f(x)$ and the tangent line at $x=-1$.