## Exercise 29

A ship at position $(1,0)$ on a nautical chart (with north in the positive $y$ direction) sights a rock at position $(2,4)$. What is the vector joining the ship to the rock? What angle $\theta$ does this vector make with due north? (This is called the bearing of the rock from the ship.)

## Solution



The vector joining the ship to the rock is

$$
(2,4)-(1,0)=(1,4) .
$$

The angle is

$$
\tan \theta=\frac{1}{4} \quad \rightarrow \quad \theta=\tan ^{-1} \frac{1}{4} \approx 14.04^{\circ}
$$

