Homework

2.1. Find the slope of the line passing through the given points.

(a) (4 points) $(-2,1)$, $(4,-3)$

(b) (4 points) $\left(-\frac{3}{2},-5\right)$, $\left(\frac{5}{6},4\right)$

2.2. (4 points) Let l_1 be the line passing through the points in 2.1.(a), and let l_2 be the line passing through the points in 2.1.(b). Are l_1 and l_2 parallel, perpendicular, or neither?

2.3. (4 points) Let $\triangle ABC$ be the triangle formed by the points $A=(4,0)$, $B=(2,1)$, and $C=(-1,5)$. Is $\triangle ABC$ a right triangle?

2.4 (4 points) Let l be the line $y=-\frac{4}{3}x+\frac{10}{3}$. Find the distance from the point $(0,0)$ to l.

Hint: First, find the point of intersection of l and the line through $(0,0)$ perpendicular to l. Then find the distance from $(0,0)$ to the point of intersection.