EX 1A. Page 1

1 (1) $m_{AB} = \frac{2}{8} = \frac{1}{4}$ (2) $m_{CD} = \frac{3}{2}$ (3) $m_{EF} = \frac{1}{3}$

(4) $m_{GH} = 5$ (5) $m_{PQ} = -\frac{1}{6}$ (6) $m_{RS} = -1$

(7) $m_{TU} = -\frac{5}{2}$ (8) $m_{VW} = -1$

2 (a) (a) positive gradients

(b) negative gradients

3 (a) $m_{LM} = \frac{4-5}{-2-1} = \frac{-1}{-3} = \frac{1}{3}$

(b) $m_{TU} = \frac{-6-(-3)}{8-(-5)} = \frac{-6+3}{8+5} = \frac{-3}{13}$

(c) $m_{HI} = \frac{4-(-7)}{-3-0} = \frac{4+7}{-3} = -\frac{11}{3}$

(d) $m_{PQ} = \frac{-1-0}{4-(-6)} = \frac{-1}{4+6} = \frac{-1}{10}$

4 (a) $m_{IJ} = 0$

$m_{KL} = 0$

(b) lines parallel to x axis have gradient 0

(c) IJ $y = 2$

KL $y = -3$

5 $y = -2$

6. (a) $m_{AB} = \frac{6}{0}$ undefined

$m_{CD} = \frac{7}{0}$ undefined

(b) AB $x = 5$

CD $x = -3$

(c) $y =$ $x = 3$

7 (a) (1) $m_{AB} = \frac{2}{3}$ (2) $m_{PQ} = \frac{6}{9} = \frac{2}{3}$ (3) $m_{ST} = \frac{4}{6} = \frac{2}{3}$

(b) Equal

(c) parallel

(d) Lines with the same gradient are para

8. $m_{KL} = \frac{6-4}{5-(-3)} = \frac{2}{5+3} = \frac{2}{8} = \frac{1}{4}$

$m_{LM} = \frac{1-6}{8-5} = \frac{-5}{3}$

$m_{MN} = \frac{-1-1}{0-8} = \frac{-2}{-8} = \frac{1}{4}$

$m_{NK} = \frac{4-(-1)}{-3-0} = \frac{4+1}{-3} = \frac{5}{-3}$

$m_{KL} = m_{MN} = \frac{1}{4}$

$m_{LM} = m_{NK} = \frac{-5}{3}$

opposite sides parallel

=> parallelogram (KLMN)

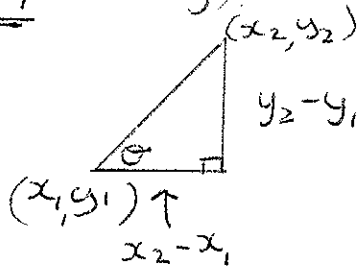
9. (a) $\angle BCD$

(b) $(m_{AB} = \tan\theta)$ $\quad m_{AB} = \dfrac{y_2 - y_1}{x_2 - x_1}$

(c) $\tan\theta$

$$\tan\theta = \frac{y_2 - y_1}{x_2 - x_1} \quad \left(\frac{opp}{adj}\right)$$

(d) the gradient of a line is equal to the tangent of the angle it makes with the positive x direction



10. $m_{KL} = \dfrac{7-3}{4-2} = \dfrac{4}{2} = 2$

$m_{KL} = \tan\theta = 2$

$\theta = 63.43^\circ$