

Eliana Gharib Math 2nd Trial 2013-2014

9B

Ex 1

1) (D_1) & (D_2) are parallel if their slopes are equal
 $2 - \sqrt{3} \stackrel{?}{=} \frac{1(2 - \sqrt{3})}{(2 + \sqrt{3})(2 + \sqrt{3})}$

$$2 - \sqrt{3} \stackrel{?}{=} \frac{2 - \sqrt{3}}{4 - 3}$$

$$2 - \sqrt{3} = 2 - \sqrt{3} \checkmark$$

Thus (D_1) & (D_2) are parallel $\textcircled{A} \checkmark$

2) $y = ax + b$ is increasing if $a > 0$ \checkmark
 The st line cuts \oplus ve y -axis \checkmark
 slope \checkmark

means b which is ordinate of origin is greater than 0 \checkmark

$a > 0$ & $b > 0$ $\textcircled{A} \checkmark$

$$3) a = \frac{\frac{1}{2} + \frac{10^2}{4^2}}{\frac{5}{2} - \frac{2 \times 2}{1 \times 2}}$$

$$= \frac{\frac{6}{2}}{\frac{1}{2}}$$

$$a = 6 \checkmark$$

$$b = (2 - \sqrt{3})^2 + \sqrt{48}$$

$$= 4 - 4\sqrt{3} + \sqrt{3}^2 + \sqrt{16 \times 3}$$

$$= 4 - 4\sqrt{3} + 3 + 2^2\sqrt{3}$$

$$= 7 - 4\sqrt{3} + 4\sqrt{3}$$

$$b = 7 \checkmark$$

(D) passes through $A(6, 7)$ (given)
 So, coordinates of A satisfy eqn of (D)

$$y = ax + 1$$

$$7 = 6 + 1$$

$7 = 7$ Thus eqn of st line (D) is $y = x + 1$ $\textcircled{A} \checkmark$