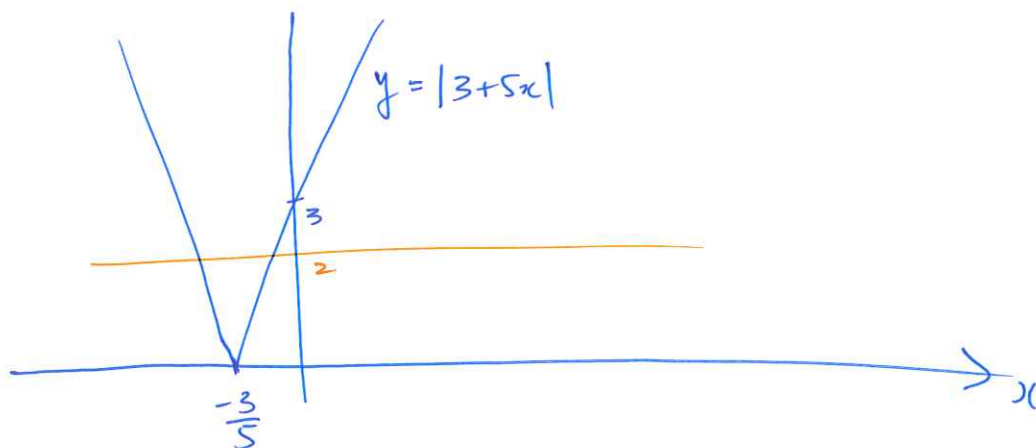


1. i) $y = |3 + 5x|$ Not continuous at $x = -\frac{3}{5}$



ii) $3 + 5x = \pm 2$

$5x = -5$

$x = -1 //$

$5x = -1$

or $x = -\frac{1}{5} //$

2. i) $p = \log_2 2^5 \Rightarrow \log_2 2 = \frac{p}{5}$

$\log_2 4 = 2 \log_2 2$

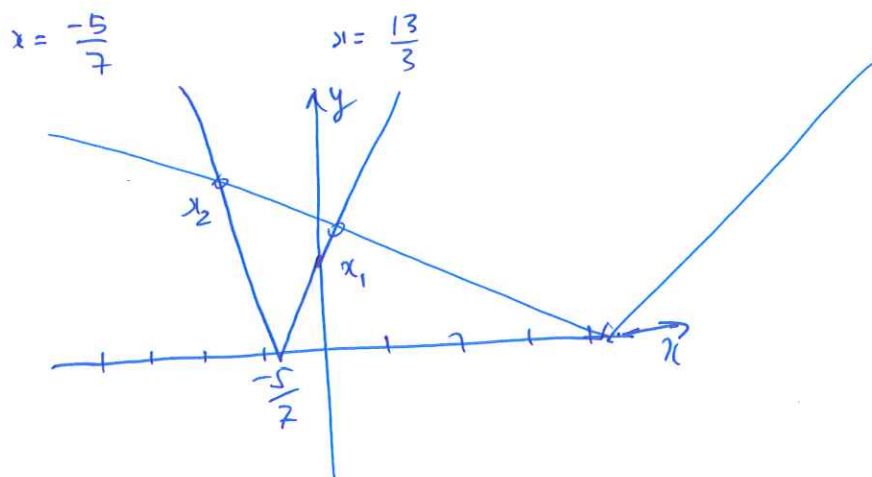
$= \frac{2p}{5} //$

ii) $\log_2 16 = \log_2 16 + 1$

$= 4 \log_2 2 + 1$

$= \frac{4p}{5} + 1 //$

3. $|7x + 5| = |3x - 13|$



$$7x_1 + 5 = 13 - 3x_1$$

$$10x_1 = 8$$

$$x_1 = \frac{8}{10}$$

$$= \frac{4}{5} //$$

$$-7x_2 - 5 = 13 - 3x_2$$

$$-18 = 4x_2$$

$$x_2 = \frac{-18}{4}$$

$$x_2 = \frac{-9}{2} //$$

5. $|5x + 7| = 13$

$$\Rightarrow 5x + 7 = \pm 13$$

$$5x + 7 = 13$$

$$5x = 6$$

$$x = \frac{6}{5} //$$

$$5x + 7 = -13$$

$$5x = -20$$

$$x = -4 //$$

Y11 Add. Maths

$$4. (i) \quad y = ax^b$$

$$\lg y = \lg(ax^b)$$

$$\text{Let } Y = \lg y \quad X = \lg x$$

$$\Rightarrow Y_1 = \lg(a) + b \lg(x)$$

$$\Rightarrow Y_1 = bX + \lg(a)$$

$$b = \frac{7-4}{8-2} = \frac{3}{6} = \frac{1}{2}$$

$$4 = \frac{1}{2}(2) + \lg(a)$$

$$\therefore \lg(a) = 3$$

$$\lg y = \lg(x^{\frac{1}{2}}) + 3$$

$$y = 10^3 x^{\frac{1}{2}}$$

$$y = 1000 x^{\frac{1}{2}}$$

$$Y_2 = \lg y^2$$

$$Y_2 = 2Y_1$$

$$Y_2 = X + 2\lg(a)$$

$$Y_2 = 1X + 6 //$$

6. i) $y = \frac{a}{x^2} + bx$

$\rightarrow x^2y = a + bx^3$

$\therefore Y = x^2y ; X = x^3$

ii)

$Y = x^2y$	9.41	5.16	-6.21	-28.32 28.32
$X = x^3$	1	8	27	64

$$b \approx \frac{9.41 - (-28.32)}{1 - 64}$$

$$\approx -0.599 \dots$$

$$\therefore a \approx 9.41 + 0.599$$

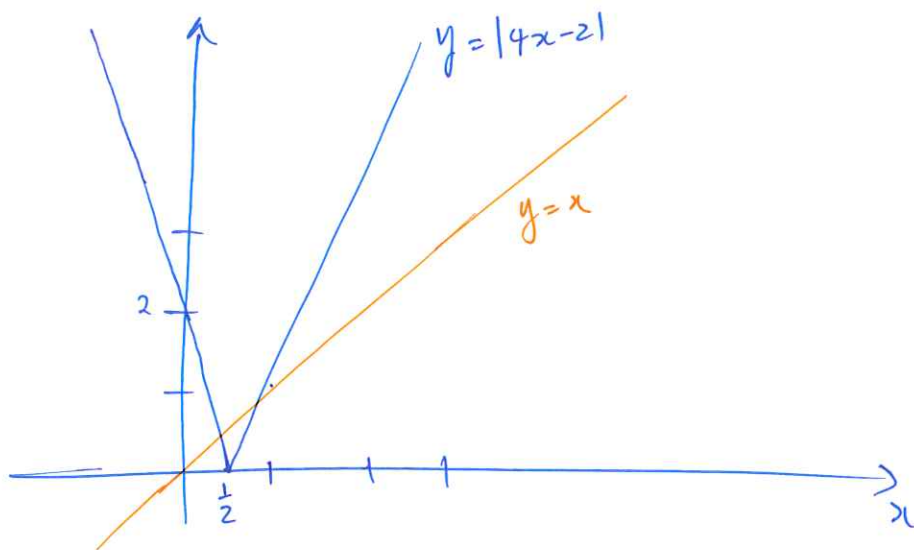
$$\approx 10.0$$

$$y = \frac{10.0}{x^2} - 0.599x$$

$$= \frac{10.0}{3.7^2} - 0.599(3.7)$$

$$= -1.49$$

7. $y = |4x - 2|$
 $x = \frac{1}{2}$



ii) $4x - 2 = \pm x$

↙
 $4x - 2 = x$
 $3x = 2$
 $x = \frac{2}{3} //$

↘
 $4x - 2 = -x$
 $5x = 2$
 $x = \frac{2}{5} //$