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classmate

Date _____

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Ch-3

Pair of Linear Equations in Two Variables

Exercise 3.1

Q.3

Path of train A is $3x + 4y - 12 = 0$

Path of train B is $6x + 8y - 48 = 0$

$$3x + 4y - 12 = 0$$

$$x = \frac{12 - 4y}{3}$$

$$3x + 4y - 12 = 0$$

x	4	0	-4	8
y	0	3	6	-3

1) Let $y = 0$

$$x = \frac{12 - 4 \times 0}{3} = \frac{12 - 0}{3} = 4$$

2) Let $y = 3$

$$x = \frac{12 - 4 \times 3}{3} = \frac{12 - 12}{3} = 0$$

3) Let $y = 6$

$$x = \frac{12 - 4 \times 6}{3} = \frac{12 - 24}{3} = -4$$

$$6x + 8y - 48 = 0$$

$$x = \frac{48 - 8y}{6}$$

$$x = \frac{24 - 4y}{3}$$

$$6x + 8y - 48 = 0$$

x	8	4	0
y	0	3	6

1) Let $y = 0$

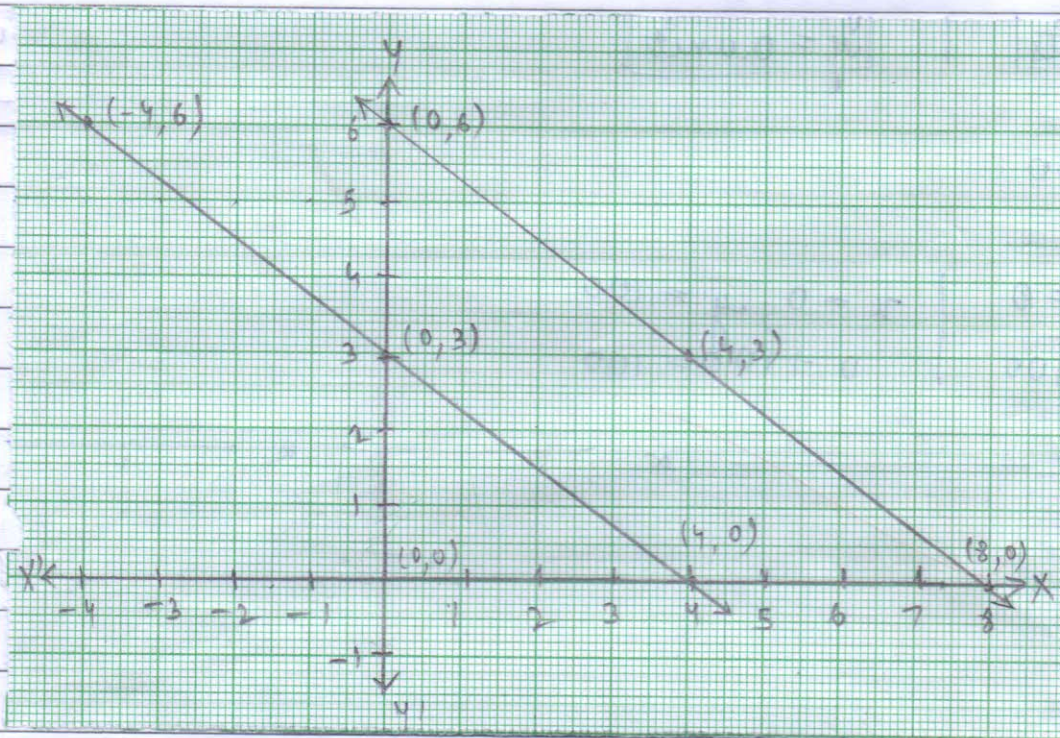
$$x = \frac{24 - 4 \times 0}{3} = \frac{24}{3} = 8$$

2) Let $y = 3$

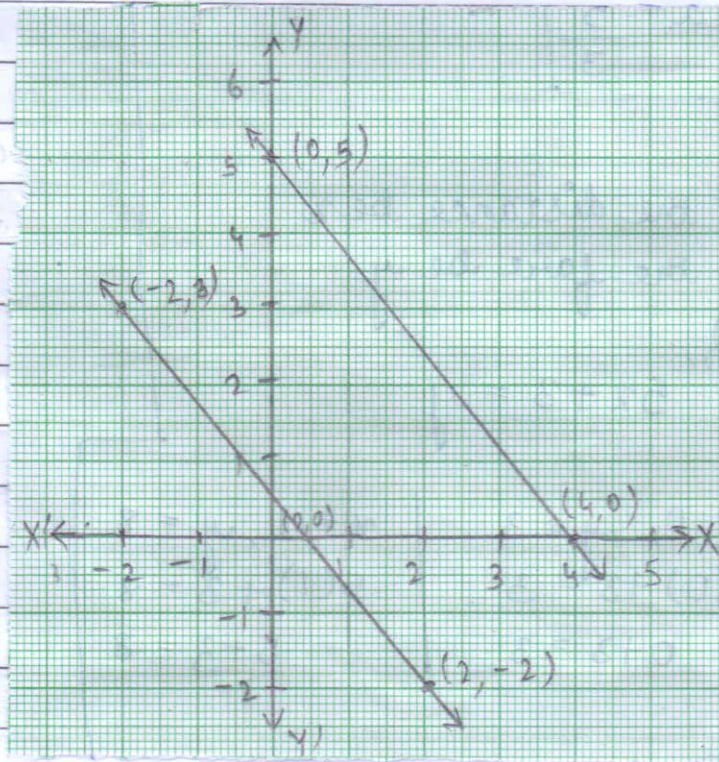
$$x = \frac{24 - 4 \times 3}{3} = \frac{24 - 12}{3} = 4$$

3) Let $y = 6$

$$x = \frac{24 - 4 \times 6}{3} = \frac{24 - 24}{3} = 0$$



Q.4



Q. 5 (i) $5x - 4y + 8 = 0$
 $7x + 6y - 9 = 0$

$$\frac{a_1}{a_2} = \frac{5}{7} ; \frac{b_1}{b_2} = \frac{-4}{6} = \frac{-2}{3} ; \frac{c_1}{c_2} = \frac{8}{-9} = \frac{-8}{9}$$

$$\frac{5}{7} \neq \frac{-2}{3}$$

$$\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$$

$\therefore$ This pair of eq. will have intersecting lines.

(ii) $9x + 3y + 12 = 0$
 $18x + 6y + 24 = 0$

$$\frac{a_1}{a_2} = \frac{9}{18} = \frac{1}{2} ; \frac{b_1}{b_2} = \frac{3}{6} = \frac{1}{2} ; \frac{c_1}{c_2} = \frac{12}{24} = \frac{1}{2}$$

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

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

$\therefore$ This pair of eq. will have coincident lines.

(iii) $6x - 3y + 10 = 0$
 $2x - y + 9 = 0$

$$\frac{a_1}{a_2} = \frac{6}{2} = 3 ; \frac{b_1}{b_2} = \frac{-3}{-1} = 3 ; \frac{c_1}{c_2} = \frac{10}{9}$$

$$3 = 3 \neq \frac{10}{9}$$

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

$\therefore$ This pair of eq. will have parallel lines.