

LATEX ASSIGNMENT

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EXERCISE 10.3.6

1. Solve the following pair of equations by reducing them to a pair of linear equations:

(i)

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

$$\frac{1}{3x} + \frac{1}{2y} = \frac{13}{6} \quad (2)$$

(ii)

$$\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2 \quad (3)$$

$$\frac{4}{\sqrt{x}} - \frac{9}{\sqrt{y}} = -1 \quad (4)$$

(iii)

$$\frac{4}{x} + 3y = 14 \quad (5)$$

$$\frac{3}{x} - 4y = 23 \quad (6)$$

(iv)

$$\frac{5}{x-1} + \frac{1}{y-2} = 2 \quad (7)$$

$$\frac{6}{x-1} - \frac{3}{y-2} = 1 \quad (8)$$

(v)

$$\frac{7x-2y}{xy} = 5 \quad (9)$$

$$\frac{8x+7y}{xy} = 15 \quad (10)$$

(vi)

$$6x + 3y = 6xy \quad (11)$$

$$2x + 4y = 5xy \quad (12)$$

(vii)

$$\frac{10}{x+y} + \frac{2}{x-y} = 4 \quad (13)$$

$$\frac{15}{x+y} - \frac{5}{x-y} = -2 \quad (14)$$

(viii)

$$\frac{1}{3x+y} + \frac{1}{3x-y} = \frac{3}{4} \quad (15)$$

$$\frac{1}{2(3x+y)} - \frac{1}{2(3x-y)} = \frac{-1}{8} \quad (16)$$

2. Formulate the following problems as a pair of equations, and hence find their solutions:

- (i) Ritu can row downstream 20km in 2 hours, and upstream 4km in 2 hours. Find her speed of rowing in still water and the speed of the current.
- (ii) 2 women and 5 men can together finish an embroidery work in 4 days, while 3 women and 6 men can finish it in 3 days. Find the time taken by 1 woman alone to finish the work, and also that taken by 1 man alone.
- (iii) Roohi travels 300km to her home partly by train and partly by bus. She takes 4 hours if she travels 60km by train and the remaining by bus. If she travels 100km by train and the remaining by bus, she takes 10 minutes longer. Find the speed of the train and the bus separately.