

28/11/2020

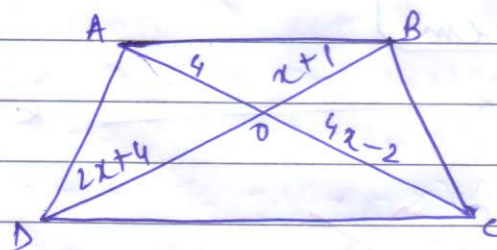
classmate

Date

Page

Ch-7
Exercise 7.4

Q.1 (i)



$AB \parallel CD$ (given)

$\frac{AO}{OC} = \frac{BO}{OD}$ (The diagonals of a trapezium divide each other proportionally)

$$\Rightarrow \frac{4}{4x-2} = \frac{x+1}{2x+4}$$

$$\Rightarrow 8x+16 = (4x-2)(x+1)$$

$$\Rightarrow 8x+16 = 4x^2 + 4x - 2x - 2$$

$$\Rightarrow 8x+16 = 4x^2 + 2x - 2$$

$$\Rightarrow 4x^2 + 2x - 8x - 2 - 16 = 0$$

$$\Rightarrow 4x^2 - 6x - 18 = 0$$

$$\Rightarrow 2x^2 - 3x - 9 = 0$$

$$\Rightarrow 2x^2 - 6x + 3x - 9 = 0$$

$$\Rightarrow 2x(x-3) + 3(x-3) = 0$$

$$\Rightarrow (x-3)(2x+3) = 0$$

$$x-3 = 0$$

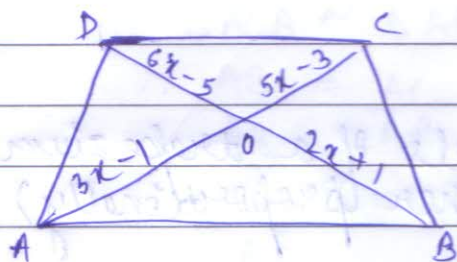
$$\boxed{x = 3}$$

$$2x+3 = 0$$

$$\boxed{x = -\frac{3}{2}}$$

(Neglected)

(i)



$AB \parallel CD$ (given)

$\frac{AO}{OC} = \frac{BO}{OD}$ (The diagonals of a trapezium divide each other proportionally)

$$\Rightarrow \frac{3x-1}{5x-3} = \frac{2x+1}{6x-5}$$

$$\Rightarrow (3x-1)(6x-5) = (2x+1)(5x-3)$$

$$\Rightarrow 18x^2 - 15x - 6x + 5 = 10x^2 - 6x + 5x - 3$$

$$\Rightarrow 18x^2 - 21x + 5 = 10x^2 - x - 3$$

$$\Rightarrow 18x^2 - 10x^2 - 21x + x + 5 + 3 = 0$$

$$\Rightarrow 8x^2 - 20x + 8 = 0$$

$$\Rightarrow 2x^2 - 5x + 2 = 0$$

$$\Rightarrow 2x^2 - 4x - x + 2 = 0$$

$$\Rightarrow 2x(x-2) - 1(x-2) = 0$$

$$\Rightarrow (x-2)(2x-1) = 0$$

$$x-2 = 0$$

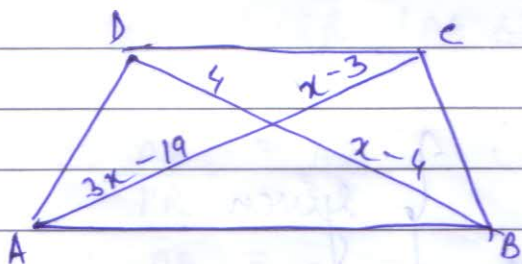
$$\boxed{x = 2}$$

$$2x-1 = 0$$

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

(Neglected)

(ii)



$AB \parallel CD$ (given)

$\frac{AO}{OC} = \frac{BO}{OD}$ (The diagonals of a trapezium divide each other proportionally)

$$\Rightarrow \frac{3x-19}{x-3} = \frac{x-4}{4}$$

$$\Rightarrow 12x - 76 = (x-3)(x-4)$$

$$\Rightarrow 12x - 76 = x^2 - 4x - 3x + 12$$

$$\Rightarrow 12x - 76 = x^2 - 7x + 12$$

$$\Rightarrow \cancel{12x} - 76 = x^2 - 7x - 12x + 12 + 76 = 0$$

$$\Rightarrow x^2 - 19x + 88 = 0$$

$$\Rightarrow x^2 - 8x - 11x + 88 = 0$$

$$\Rightarrow x(x-8) - 11(x-8) = 0$$

$$\Rightarrow (x-8)(x-11) = 0$$

$\Rightarrow$

$$x - 8 = 0$$

$$\boxed{x = 8}$$

$$x - 11 = 0$$

$$\boxed{x = 11}$$