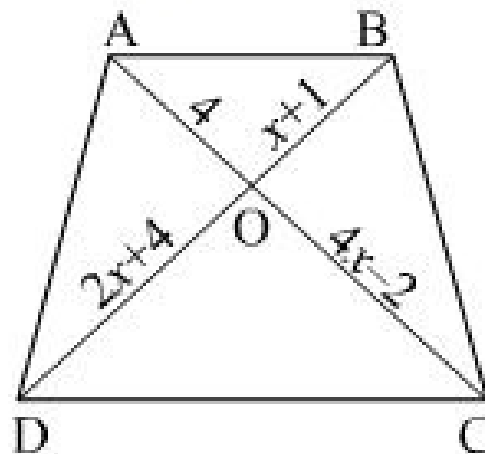




Triangles Ex 4.4 Q1

Answer :

(i) It is given that $AB \parallel CD$.



We have to find the value of x .

Diagonals of the para

$$\text{Now } \frac{DO}{OA} = \frac{CO}{OB}$$

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

$$4(2x+4) = (4x-2)(x+1)$$

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

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

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

$$-4x^2 + 6x + 18 = 0$$

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

$$4x^2 - 12x + 6x - 18 = 0$$

So

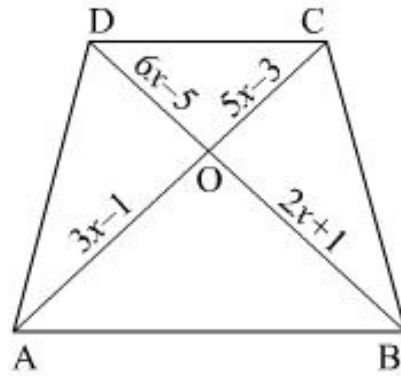
$$4x(x-3) + 6(x-3) = 0$$

$$(4x+6)(x-3) = 0$$

Therefore $4x+6=0$ and $x-3=0$

Hence $\boxed{x=3}$

(ii) It is given that $AB \parallel CD$



We have to find the value of x

$$\text{Now } \frac{DO}{OA} = \frac{CO}{OB}$$

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

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

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

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

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

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

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

$$8x(x-2) - 4(x-2) = 0$$

$$(8x-4)(x-2) = 0$$

So

$$(8x-4)(x-2) = 0$$

Therefore $8x-4=0$ or $x-2=0$

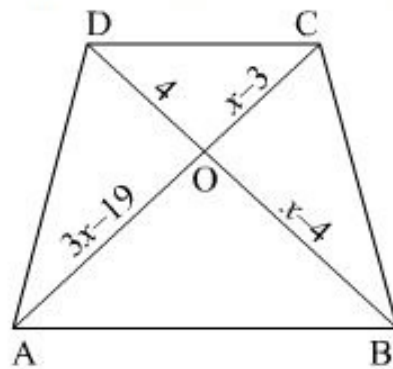
Hence $x = \frac{1}{2}$ or $x = 2$.

For $x = \frac{1}{2}$, OD is negative.

Hence $\boxed{x=2}$

(iii) It is given that $AB \parallel CD$.

And $OA = 3x - 19$, $OB = x - 4$, $OC = x - 3$ and $OD = 4$



We have to find the value of x

$$\text{Now } \frac{AO}{OC} = \frac{BO}{OD}$$

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

$$4(3x-19) = (x-3)(x-4)$$

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

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

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

$$-x^2+7x-12+12x-76=0$$

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

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

So

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

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

Therefore $x-11=0$ and $x-8=0$

Hence $\boxed{x=8}$ or $\boxed{x=11}$.

***** END *****