Areas of Parallelograms and Triangles Ex 15.3 Q7

Answer :

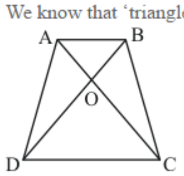
Given:

ABCD is a trapezium with AB||DC

To prove: Area of ΔAOD = Area of ΔBOC

Proof:

We know that 'triangles between the same base and between the same parallels have equal area'



Here ΔABC and ΔABD are between the same base and between the same parallels AB and DC.

Therefore $\text{Area}(\Delta ABC) = \text{Area}(\Delta ABD)$

$\Rightarrow \quad ar(\Delta ABC) - ar(\Delta AOB) = ar(\Delta ABD) - ar(\Delta AOB)$

$\Rightarrow \quad ar(\Delta AOD) = ar(\Delta BOC)$

Hence it is proved that $\boxed{ar(\Delta AOD) = ar(\Delta BOC)}$

Areas of Parallelograms and Triangles Ex 15.3 Q8

Answer :

Given:

(1) ABCD is a parallelogram,

(2) ABFE is a parallelogram

(3) CDEF is a parallelogram

To prove: Area of ΔADE = Area of ΔBCF

Proof:

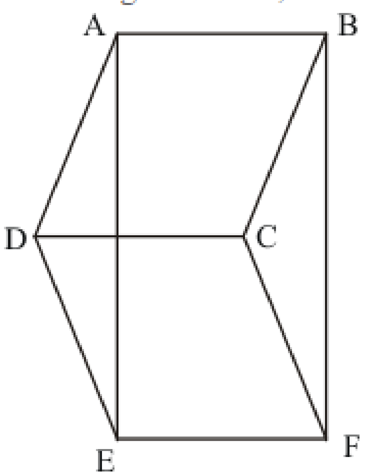
We know that," opposite sides of a parallelogram are equal"

Therefore for

Parallelogram ABCD, AD = BC

Parallelogram ABFE, AE = BF

Parallelogram CDEF, DE = CF.



Thus, in ΔADE and ΔBCF, we have

$$AD = BC$$

$$AE = BF$$

$$DE = CF$$

So be SSS criterion we have

$$\Delta ADE \cong \Delta BCF$$

This means that $ar(\Delta ADE) = ar(\Delta BCF)$

Hence it is proved that $\boxed{ar(\Delta ADE) = ar(\Delta BCF)}$

*********** END **********