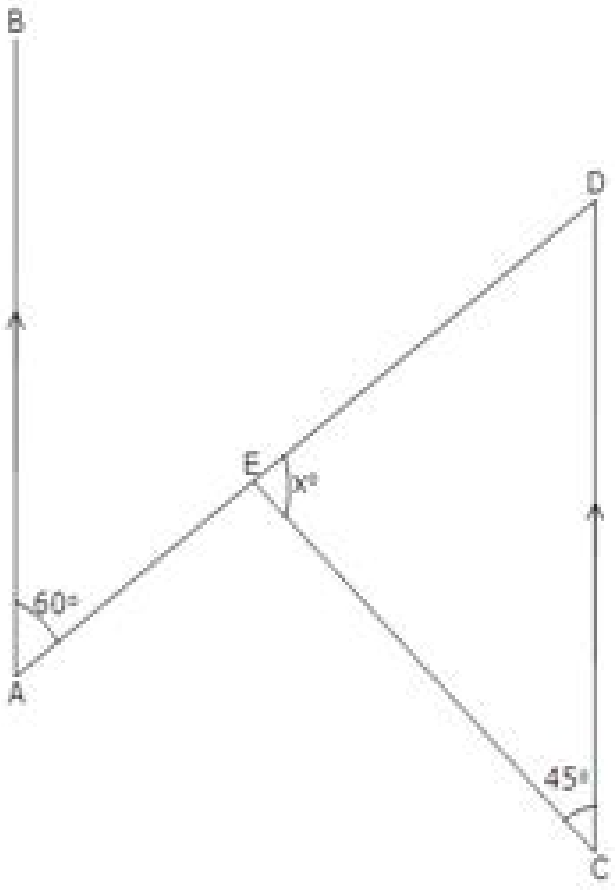
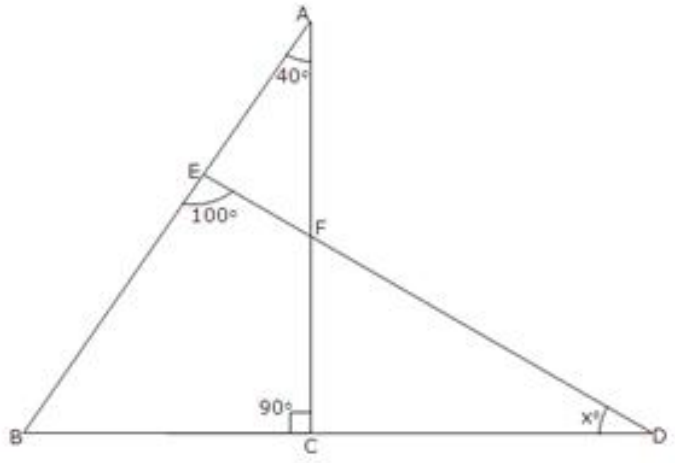
Exercise 4D

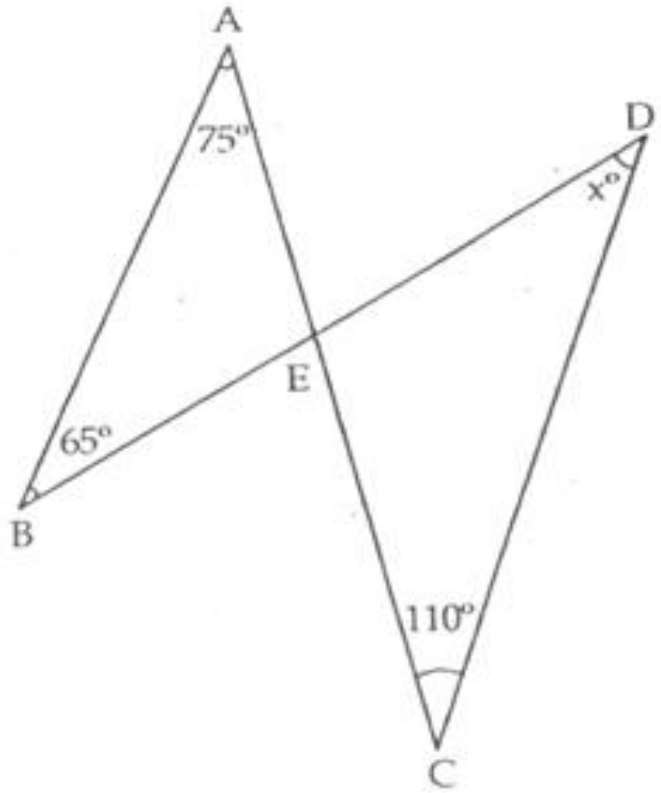
(iv)



Since AB || CD and AD is a transversal.
So, ∠BAD = ∠ADC
⇒ ∠ADC = 60^{O}
In ∠ECD, we have,
∠E + ∠C + ∠D = 180^{O}
⇒ $x^{O} + 45^{O} + 60^{O} = 180^{O}$
⇒ $x^{O} + 105^{O} = 180^{O}$
⇒ $x^{O} = 180^{O} - 105^{O} = 75^{O}$
∴ x = 75
(v)



In **Δ**AEF,
Exterior ∠BED = ∠EAF + ∠EFA
⇒ $100^O = 40^O + ∠EFA$
⇒ $∠EFA = 100^O - 40^O = 60^O$
Also, ∠CFD = ∠EFA [Vertically Opposite angles]
⇒ $∠CFD = 60^O$
Now in **Δ**FCD,
Exterior ∠BCF = ∠CFD + ∠CDF
⇒ $90^O = 60^O + x^O$
⇒ $x^O = 90^O - 60^O = 30^O$
∴ x = 30
(vi)



In **Δ**ABE, we have,
$∠A + ∠B + ∠E = 180^O$
⇒ $75^O + 65^O + ∠E = 180^O$
⇒ $140^O + ∠E = 180^O$
⇒ $∠E = 180^O - 140^O = 40^O$
Now, ∠CED = ∠AEB [Vertically opposite angles]
⇒ $∠CED = 40^O$

Now, in ΔCED, we have,

$\angle C + \angle E + \angle D = 180^{O}$

$\Rightarrow 110^{O} + 40^{O} + x^{O} = 180^{O}$

$\Rightarrow 150^{O} + x^{O} = 180^{O}$

$\Rightarrow x^{O} = 180^{O} - 150^{O} = 30^{O}$

$\therefore x = 30$

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