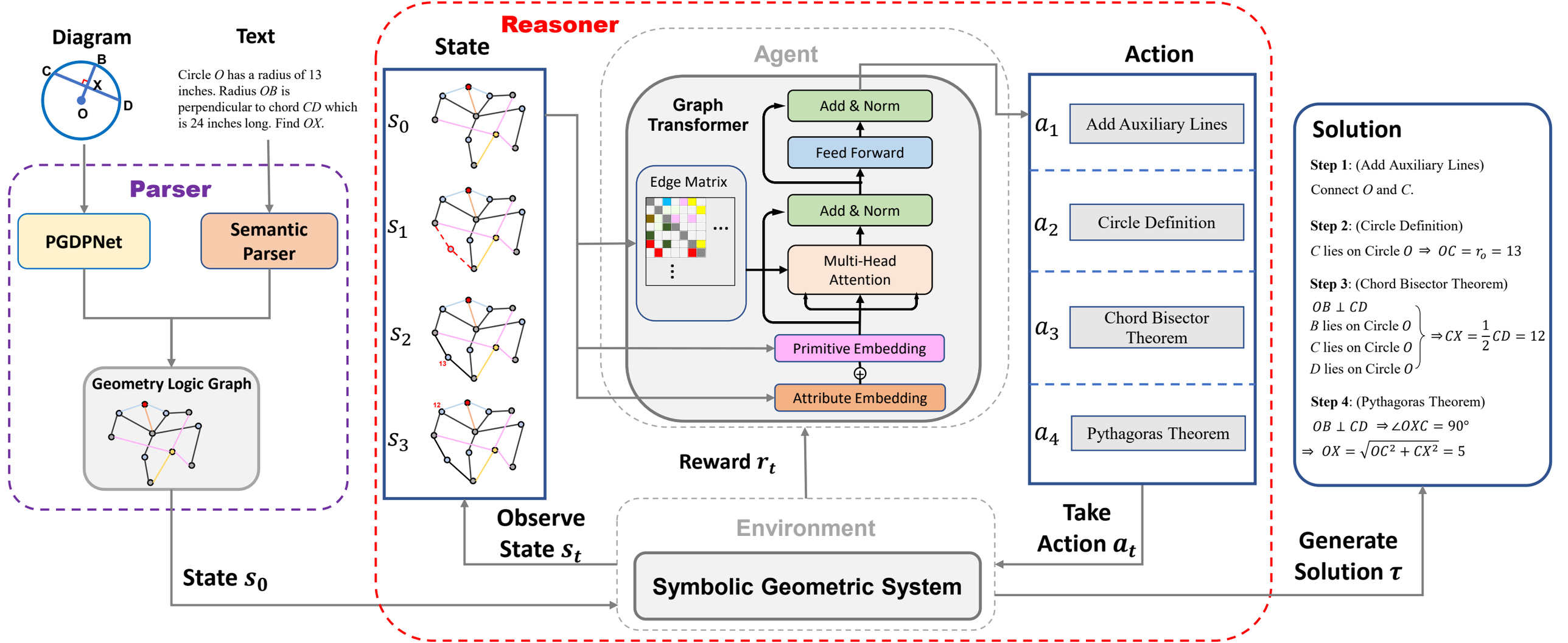
Diagram
Text
Circle O has a radius of 13 inches. Radius OB is perpendicular to chord CD which is 24 inches long. Find OX.
Parser
PGDPNet
Semantic Parser
Geometry Logic Graph
State s_0
Reasoner
State
s_0
s_1
s_2
s_3
Agent
Graph Transformer
Edge Matrix
Add & Norm
Feed Forward
Add & Norm
Multi-Head Attention
Primitive Embedding
Attribute Embedding
Reward r_t
Observe State s_t
Environment
Symbolic Geometric System
Action
a_1 Add Auxiliary Lines
a_2 Circle Definition
a_3 Chord Bisector Theorem
a_4 Pythagoras Theorem
Take Action a_t
Generate Solution τ
Solution
Step 1: (Add Auxiliary Lines)
Connect O and C.
Step 2: (Circle Definition)
C lies on Circle O ⇒ OC = r_o = 13
Step 3: (Chord Bisector Theorem)
OB ⊥ CD
B lies on Circle O
C lies on Circle O
D lies on Circle O
⇒ CX = $\frac{1}{2}$CD = 12
Step 4: (Pythagoras Theorem)
OB ⊥ CD ⇒ ∠OXC = 90°
⇒ OX = $\sqrt{OC^2 + CX^2}$ = 5