

Ka'idar Zagaye (Circle Theorem) da Shaidar Karbabben Tsarin Geometry na Zagaye – SS2 (Hausa)

1. Ka'idar Zagaye (Circle Theorem)

Gabatarwa:

Zagaye (circle) yana daya daga cikin mahimman siffofi a fannin ilimin lissafi (geometry). Yana da tsawon radius **ɗaya** daga tsakiya zuwa kewayen shi. Akwai **ka'idodi** da dokoki da ke shafar zagaye waɗanda ake kira "**Circle Theorems**".

Muhimman Ka'idojin Zagaye:

i. Ka'idar Wani Angle da Aka Jawo Daga Tsakiya

- Duk wani kusurwa da aka kirƙira daga tsakiya zuwa wani bango yana ninki biyu na kusurwa da aka kirƙira a kwaryar zagaye.
- Misali:** Idan kusurwa daga tsakiya zuwa wani bango shine 80° , to kusurwa daga wannan bango zuwa wani matsayi a kwaryar zagaye zai zama 40° .

ii. Ka'idar Kusurwa a Kan Kewaye

- Duk wasu kusurwoyi da aka kirƙira a kwaryar zagaye ta dogaro da ɗaya daga cikin igiyoyin zagaye suna da daidai daraja.
- Misali:** Idan akwai dogo guda ɗaya a zagaye da kusurwa biyu a kwaryar zagaye, to kusurwoyin nan biyu suna daidai.

iii. Ka'idar Semi-Circle

- Duk wani kusurwa da aka kirƙira a rabi na zagaye (semi-circle) yana 90° . Wannan yana nuna cewa idan aka zana triangle a cikin rabi na zagaye, to wannan triangle ɗin zai zama triangle mai kusurwa madaidaiciya (Right-angled triangle).

iv. Ka'idar Tangent da Radius

- Duk wani layi mai lamba da ya taba zagaye a waje (tangent), yana kusurwa 90° da radius na zagaye.

v. Ka'idar Chord na Zagaye

- Idan aka raba wani chord (layin da ke haɗa bangarorin zagaye) ta radius a tsakiya, to yana samar da kusurwa 90° .

2. Shaidar Karbabben Tsarin Geometry na Zagaye (Deductive Proof of Circle Geometry)

Gabatarwa:

Shaidar karbabben tsarin geometry yana nufin tabbatar da gaskiya ta amfani da wasu ka'idodi da shaidun kimiyya. A cikin circle geometry, ana amfani da wasu shaidun lissafi da tsari don tabbatar da gaskiyar ka'idodin da aka ambata.

Misalan Shaidar Karbabben Tsarin Geometry a Cikin Zagaye

Misali 1: Shaidar Kusurwar Semi-Circle Yana 90°

Ka'ida: Duk wani kusurwa da aka kirƙira daga rabi na zagaye yana daidai da 90° .

Shaida:

- Bari **ABC** ya zama triangle a cikin semi-circle, inda **AB** shine diamita.
- Tsakiya na zagaye** yana raba diamita zuwa rabin su.
- Daga **Ka'idar Angle a Tsakiya**, za mu iya tabbatar da cewa kusurwar da aka kirƙira a kwaryar zagaye tana daidai da rabin kusurwar da aka kirƙira daga tsakiya.
- Saboda haka, kusurwar **C** na triangle **ABC** yana daidai da 90° .

Misali 2: Shaidar Tangent da Radius Suna 90°

Ka'ida: Duk wani radius da ke taɓa tangent yana 90° .

Shaida:

- Bari **O** ya zama tsakiya na zagaye.
- Idan **T** shine inda tangent ɗin ya taɓa zagaye, sai a zana layi **OT** (radius).
- Idan muka yi amfani da ka'idar lissafi ta bambancin tsayi na radius daga tsakiya zuwa kewayen zagaye, za mu tabbatar cewa yana samar da kusurwa 90° da tangent.

Muhimman Ayyuka (Exercises)

- Idan aka ba ka triangle a cikin semi-circle, yi bayanin dalilin da yasa kusurwar sa dole ne ta zama 90° .
- Idan wani tangent ya taɓa zagaye, menene kusurwar sa da radius?
- Idan kusurwa a tsakiya shine 100° , menene kusurwa da aka kirƙira a kewayen zagaye?
- Idan aka ba ka wani chord, me zai faru idan radius ya raba shi a tsakiya?

Kammalawa:

A cikin wannan darasi, mun koyi **muhimman ka'idodi** game da zagaye da yadda ake amfani da **shaidar lissafi** don tabbatar da su. Wadannan ka'idodi suna da amfani sosai a **lissafi, aikin injiniya, zane-zane** da kuma **fahimtar siffofin lissafi** a rayuwa.