The Development of Mathematical Knowledge

Knowledge Acquisition

Knowledge is acquired by construction, it is not by acquired by transmition (Resnick, 1987)

Knowledge Acquisition

Knowledge acquisition involves restructuring ;that is, not only does the amount of knowledge increase but also one's body of knowledge is reorganizes as more and more pieces of knowledge are acquired (Rumelhart &Norman, 1978)

Knowledge Acquisition

The process of knowledge acquisition is constrained (Gelman, 1990)

Knowledge Acquisition

Knowledge is usually acquire domain by domain (Chi, Glaser, Rees, 1982)

Knowledge Acquisition

Knowledge acquisition is situated in contexts (Brown, Collins, & Duguid, 1989)

Knowledge Acquisition

The process of knowledge acquisition is constrained (Gelman, 1990)

Perkembangan Pengetahuan

Tacit Knowledge

Explicit Knowledge

Tacit Knowledge

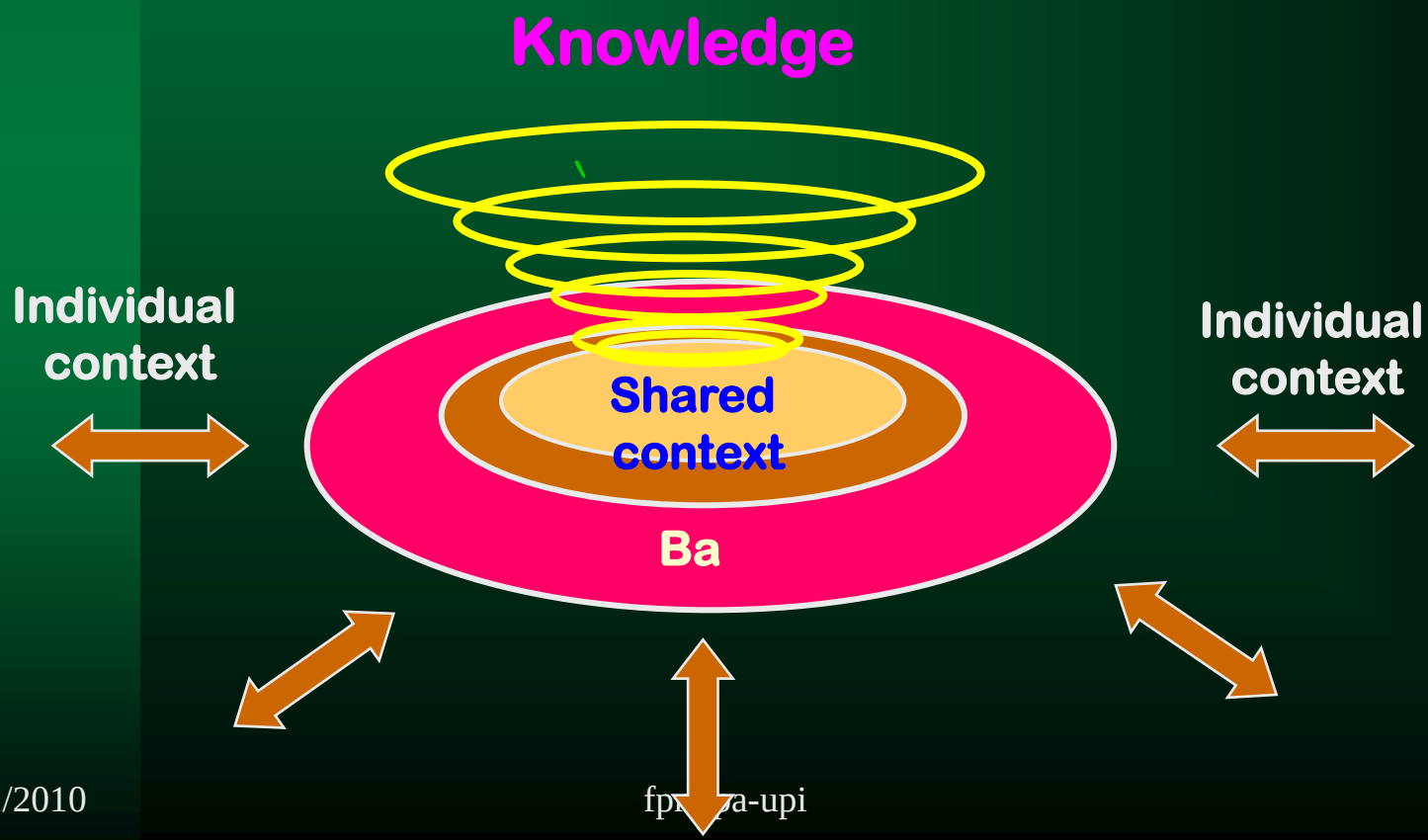
Subjective and experiential knowledge that can not be expressed in words, sentences, or formulas

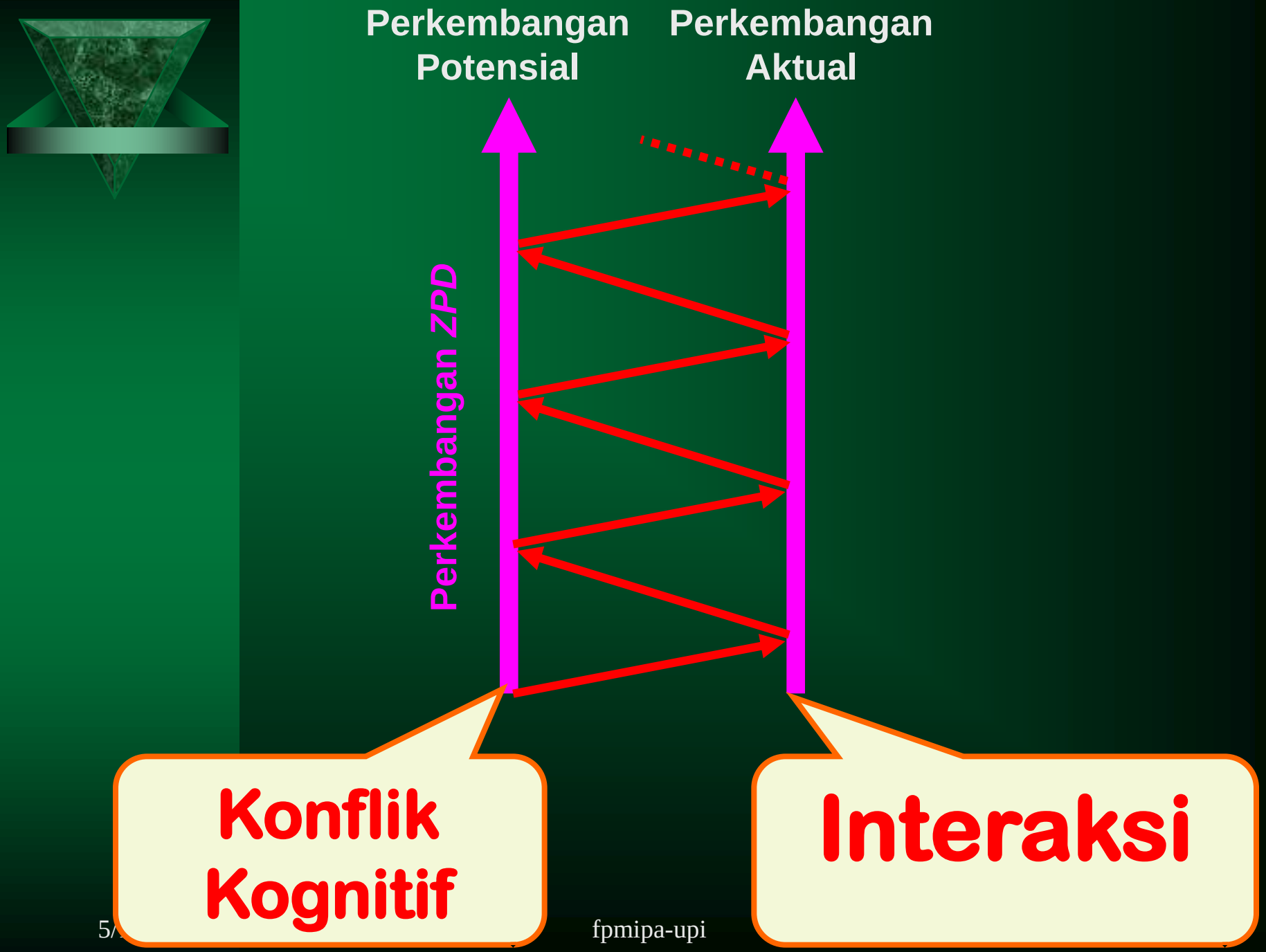
Explicit Knowledge

Objective and rational knowledge that can be expressed in words, sentences, or formulas

Ba as shared context in motion

Individual context are shared at Ba, and the shared context and individual contexts expand themselves through interaction




Perkembangan Potensial
Perkembangan Aktual
Perkembangan ZPD
Konflik Kognitif
Interaksi

Kompetensi Matematik

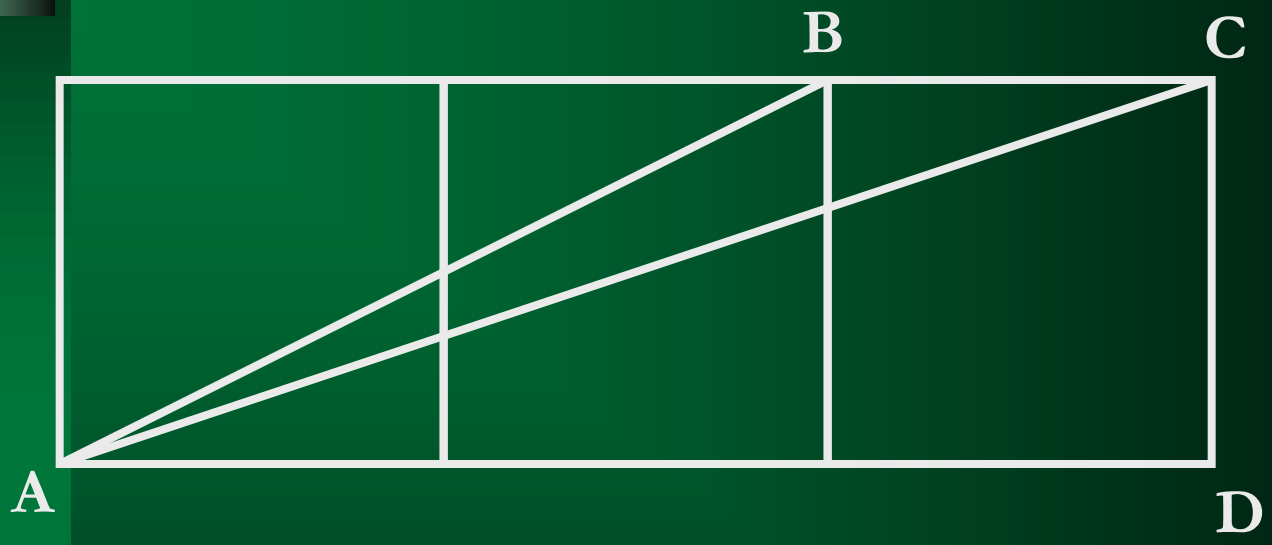
Conceptual understanding

Procedural fluency

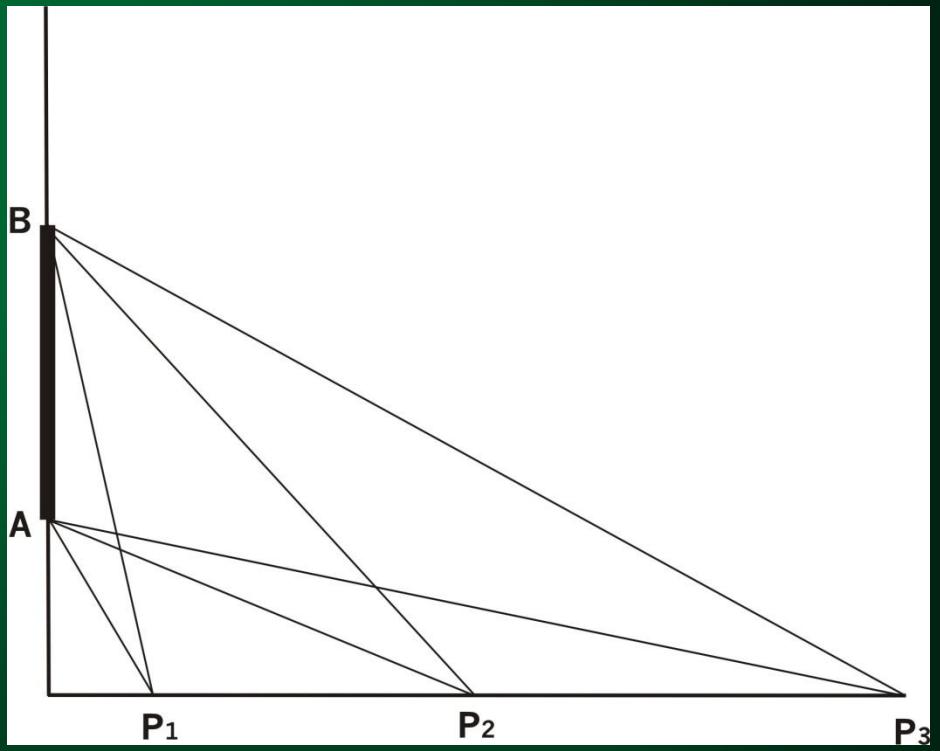
Strategic competence

Adaptive reasoning

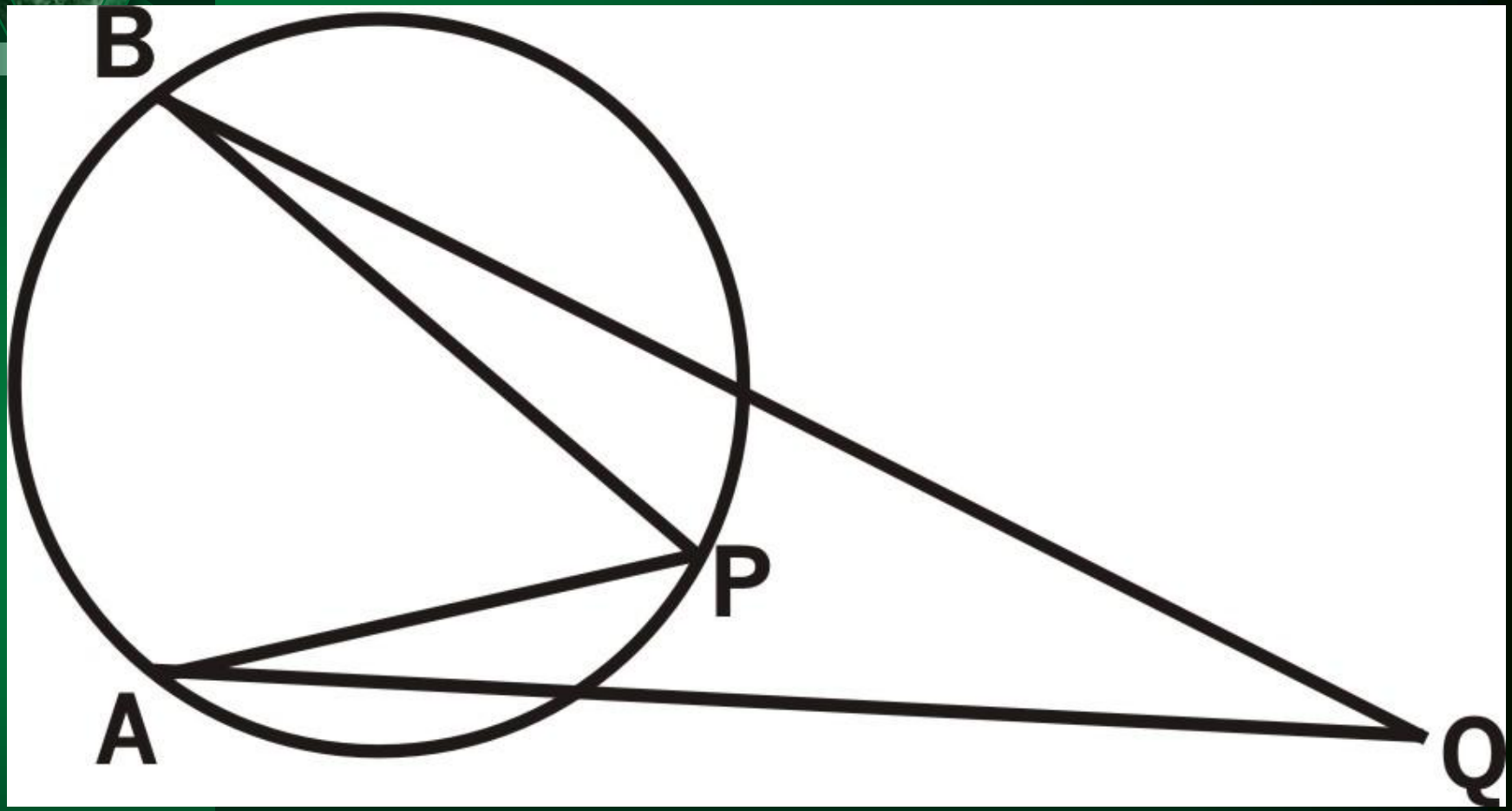
Productive disposition

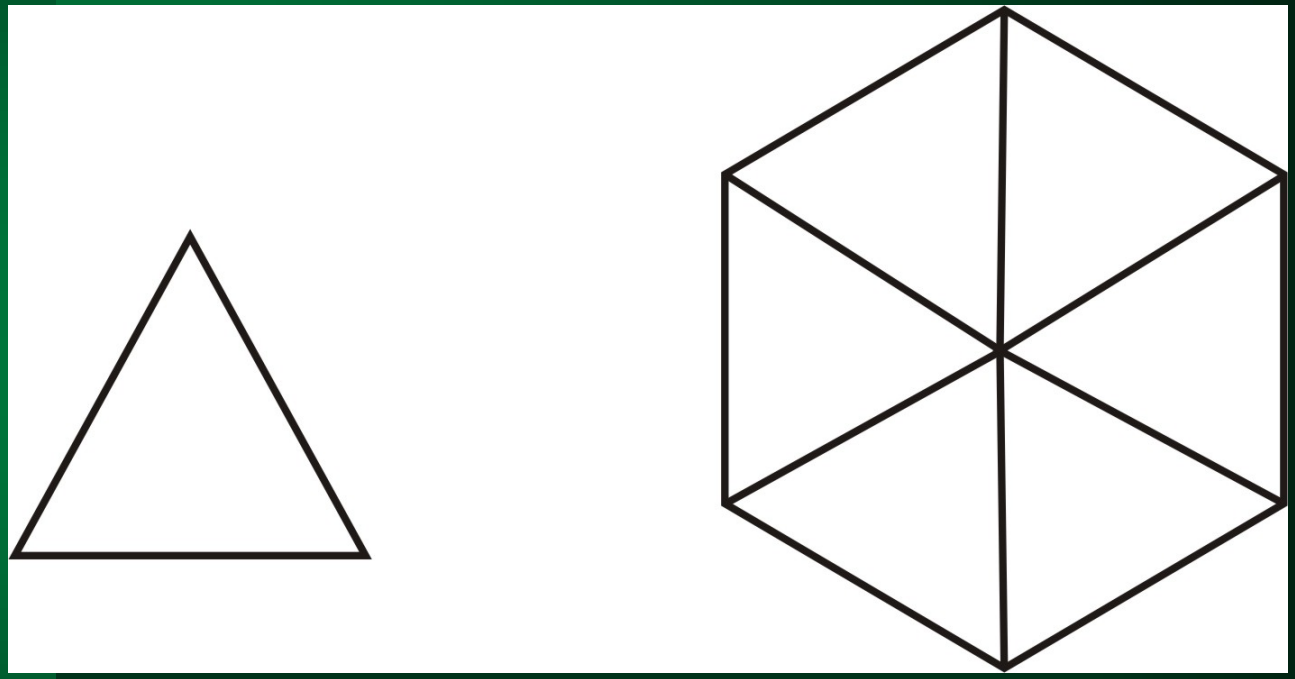

B
C
A
D

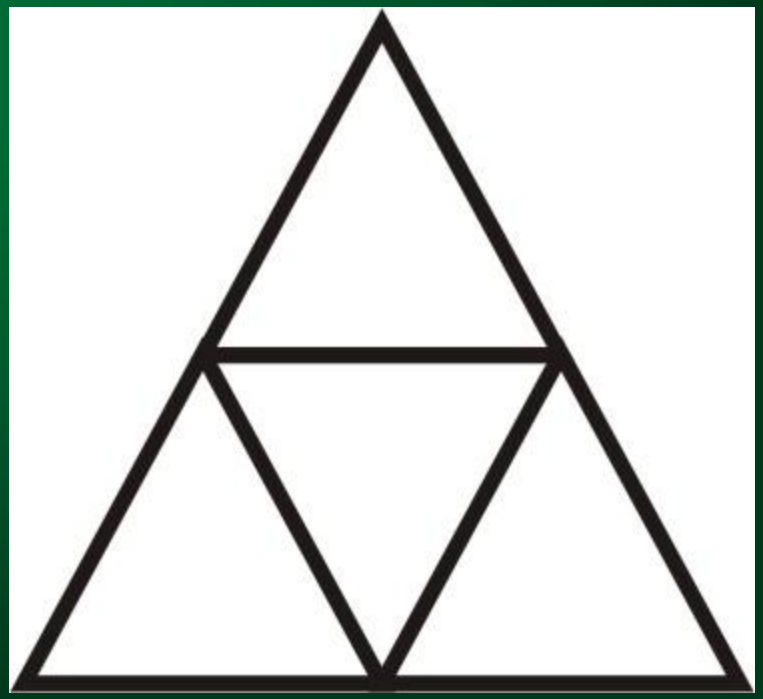
Pada gambar di bawah ini, AB adalah penampang sebuah layar bioskop, sedangkan titik P adalah posisi tempat duduk penonton.

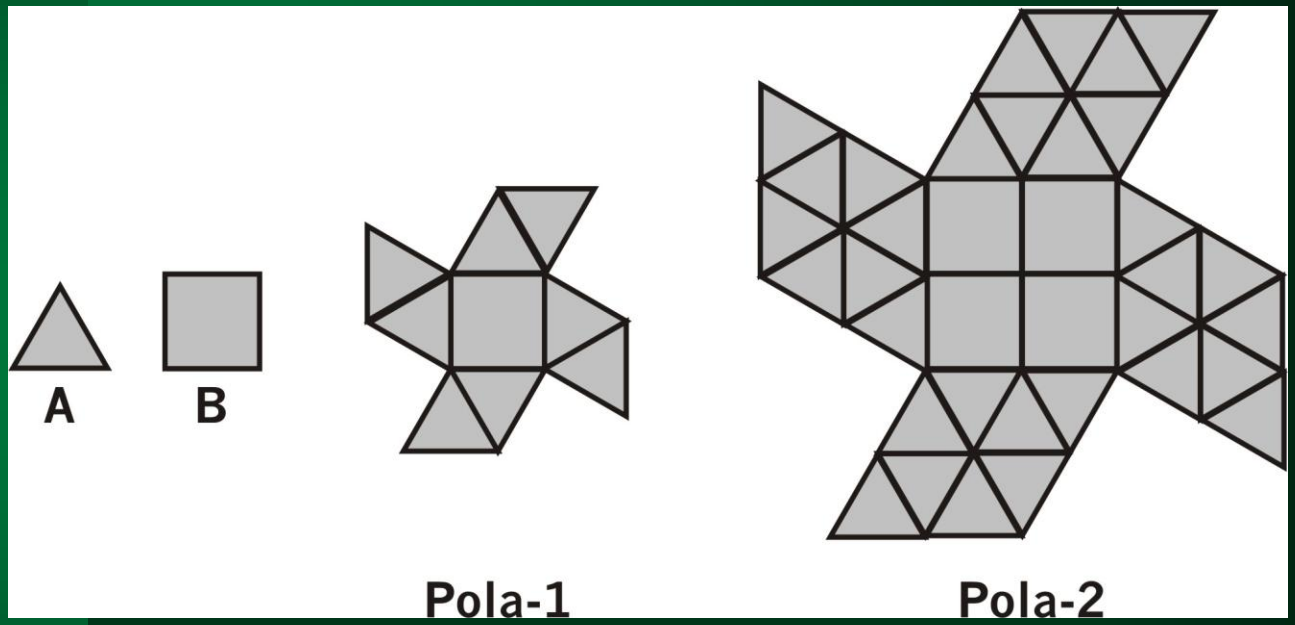


1. *Ukurlah besar sudut AP1B, AP2B, dan AP3B. Sudut manakah yang paling besar?*
2. *Tentukan posisi titik P pada garis hirisontal sehingga diperoleh sudut APB yang terbesar (sudut pandang dari posisi tempat duduk P terhadap layar AB yang terbesar).*


B
P
A
Q






A
B
Pola-1
Pola-2