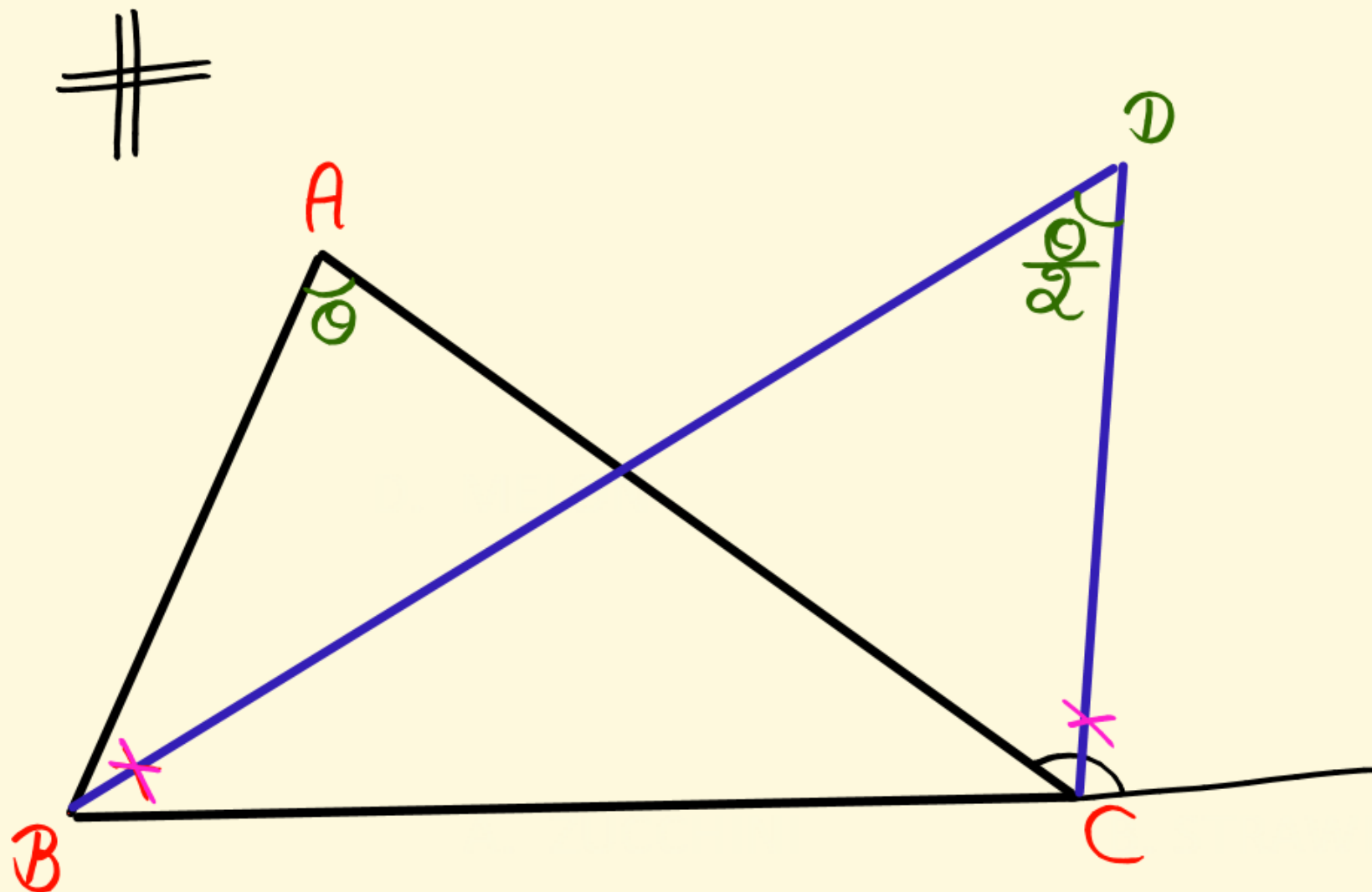




THEOREM (2)

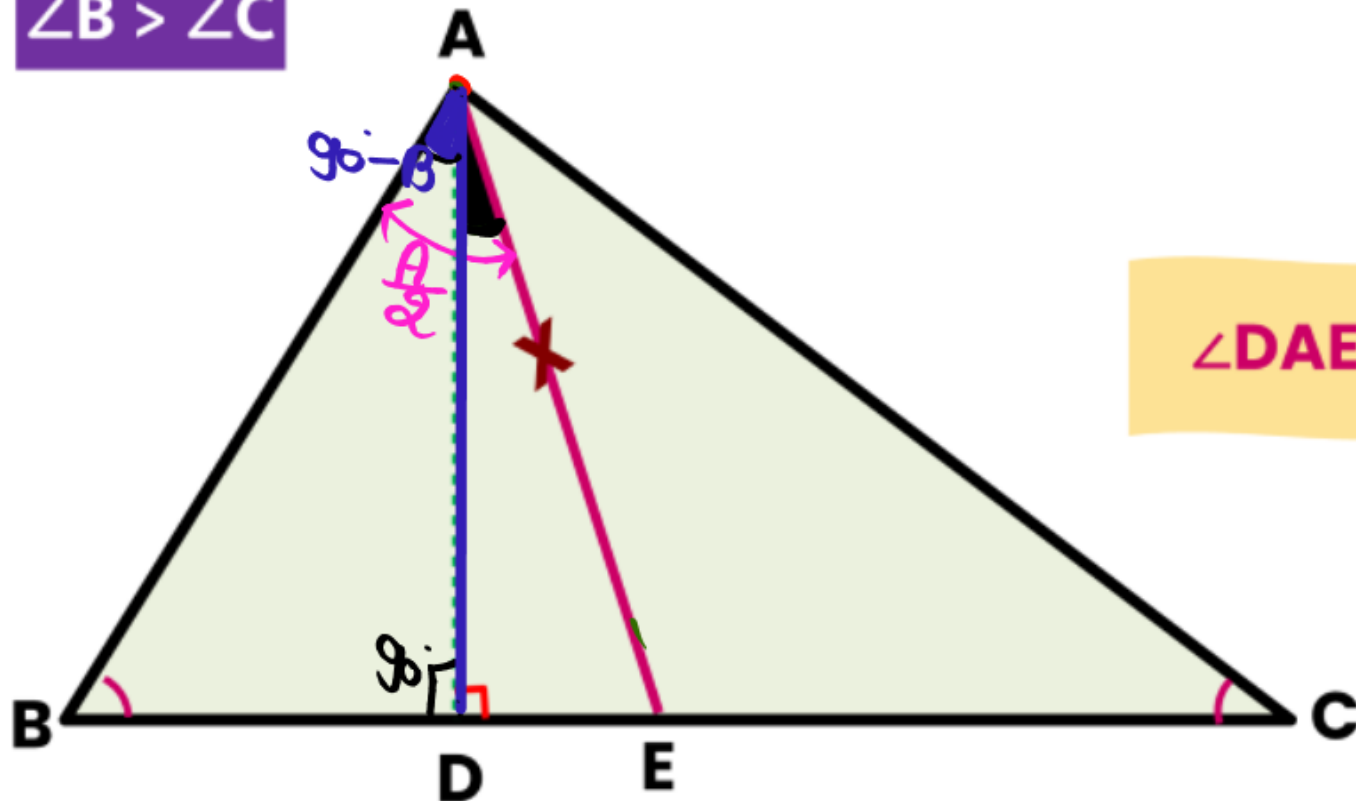


- ❖ In a triangle ABC, AE is the angle bisector of $\angle BAC$ and AD is the perpendicular drawn on side BC.

त्रिभुज ABC में, AE $\angle BAC$ का कोण समद्विभाजक है और AD भुजा BC पर खींचा गया लंब है।

$$AD \perp BC$$

$$\angle B > \angle C$$



$$\angle DAE = \frac{\angle B - \angle C}{2}$$

$$\angle DAE = \frac{A}{2} - (90^\circ - B)$$

$$= \frac{A}{2} + B - 90^\circ$$

$$= \frac{A}{2} + B - \left(\frac{A}{2} + \frac{B}{2} + \frac{C}{2} \right)$$

$$= \frac{B}{2} - \frac{C}{2} = \frac{\angle B - \angle C}{2}$$

$$\frac{A}{2} + \frac{B}{2} + \frac{C}{2} = \frac{180^\circ}{2}$$



6. In $\triangle ABC$, $AD \perp BC$ at D and AE is the bisector of $\angle A$. If $\angle B = 62^\circ$ and $\angle C = 36^\circ$, then what is the measure of $\angle DAE$?

$\triangle ABC$ में, D पर $AD \perp BC$ है और AE, $\angle A$ का समद्विभाजक है। यदि $\angle B = 62^\circ$ और $\angle C = 36^\circ$ है, तो $\angle DAE$ का माप ज्ञात करें।

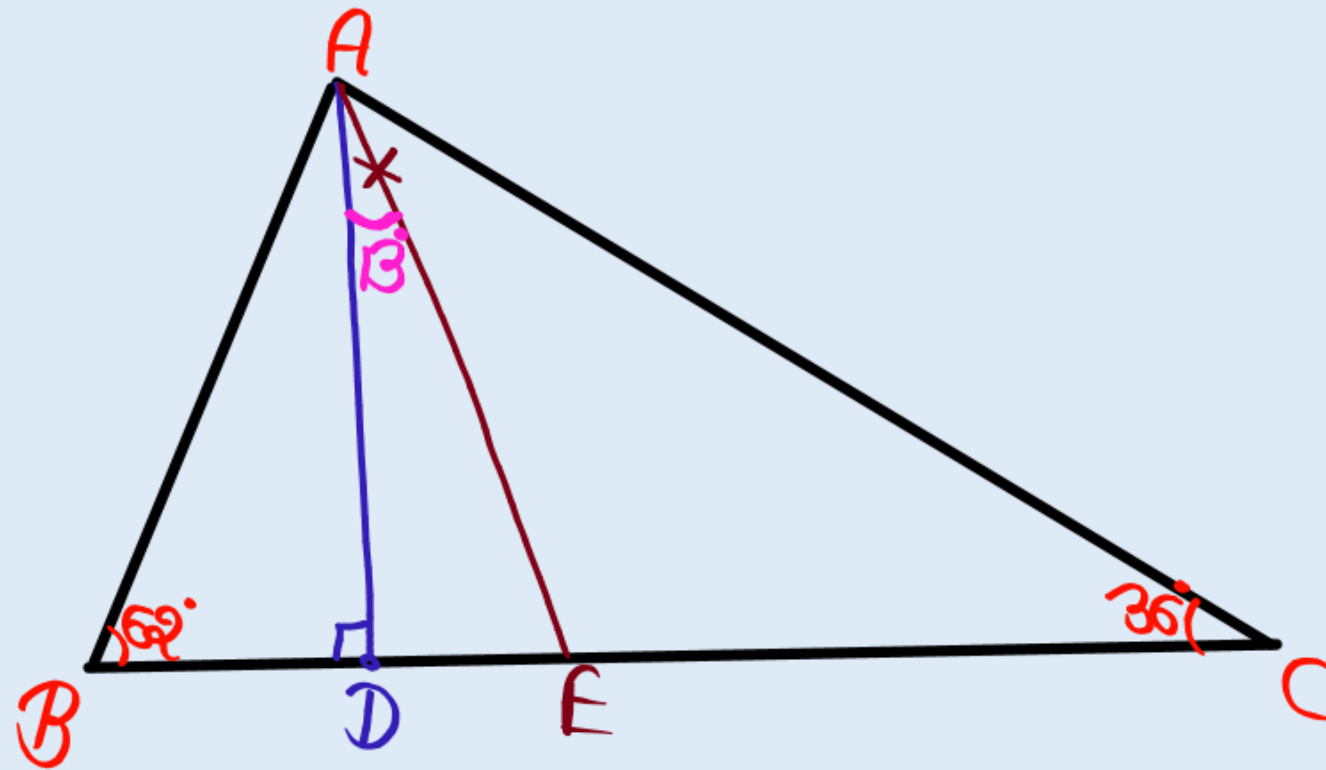
[A] 13°

[B] 54°

[C] 23°

[D] 27°

$$\frac{62^\circ - 36^\circ}{2}$$



7. In $\triangle ABC$, $\angle B = 78^\circ$, AD is a bisector of $\angle A$ meeting BC at D, and $AE \perp BC$ at E. If $\angle DAE = 24^\circ$, then the measure of $\angle ACB$ is:

$\triangle ABC$ में, $\angle B = 78^\circ$ है, $\angle A$ का समद्विभाजक AD है जो BC से बिंदु D पर मिलता है और बिंदु E पर $AE \perp BC$ है। यदि $\angle DAE = 24^\circ$ है, तो $\angle ACB$ की माप क्या है?

[A] 38°

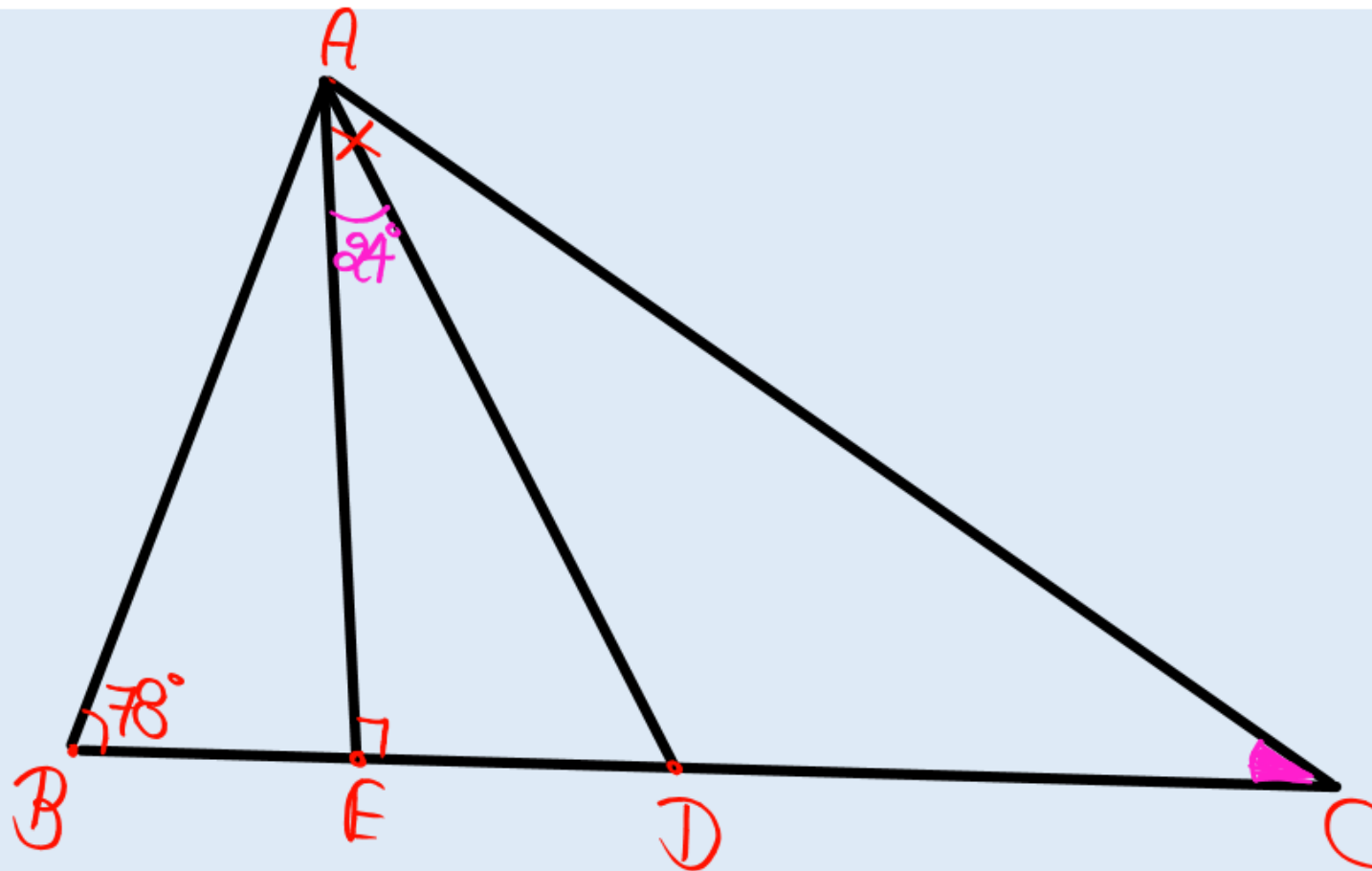
☒ [B] 30°

[C] 32°

[D] 42°

$$24^\circ = \frac{78^\circ - C}{2}$$

$$C = 30^\circ$$



8. In $\triangle PQR$, $\angle Q > \angle R$, PS is the bisector of $\angle P$ and $PT \perp RQ$. If $\angle SPT = 28^\circ$ and $\angle R = 23^\circ$, then the measure of $\angle Q$ is:

$\triangle PQR$ में, $\angle Q > \angle R$, PS, $\angle P$ का द्विभाजक है। और $PT \perp RQ$ यदि $\angle SPT = 28^\circ$ और $\angle R = 23^\circ$ है, तो $\angle Q$ का माप है:

[A] 79°

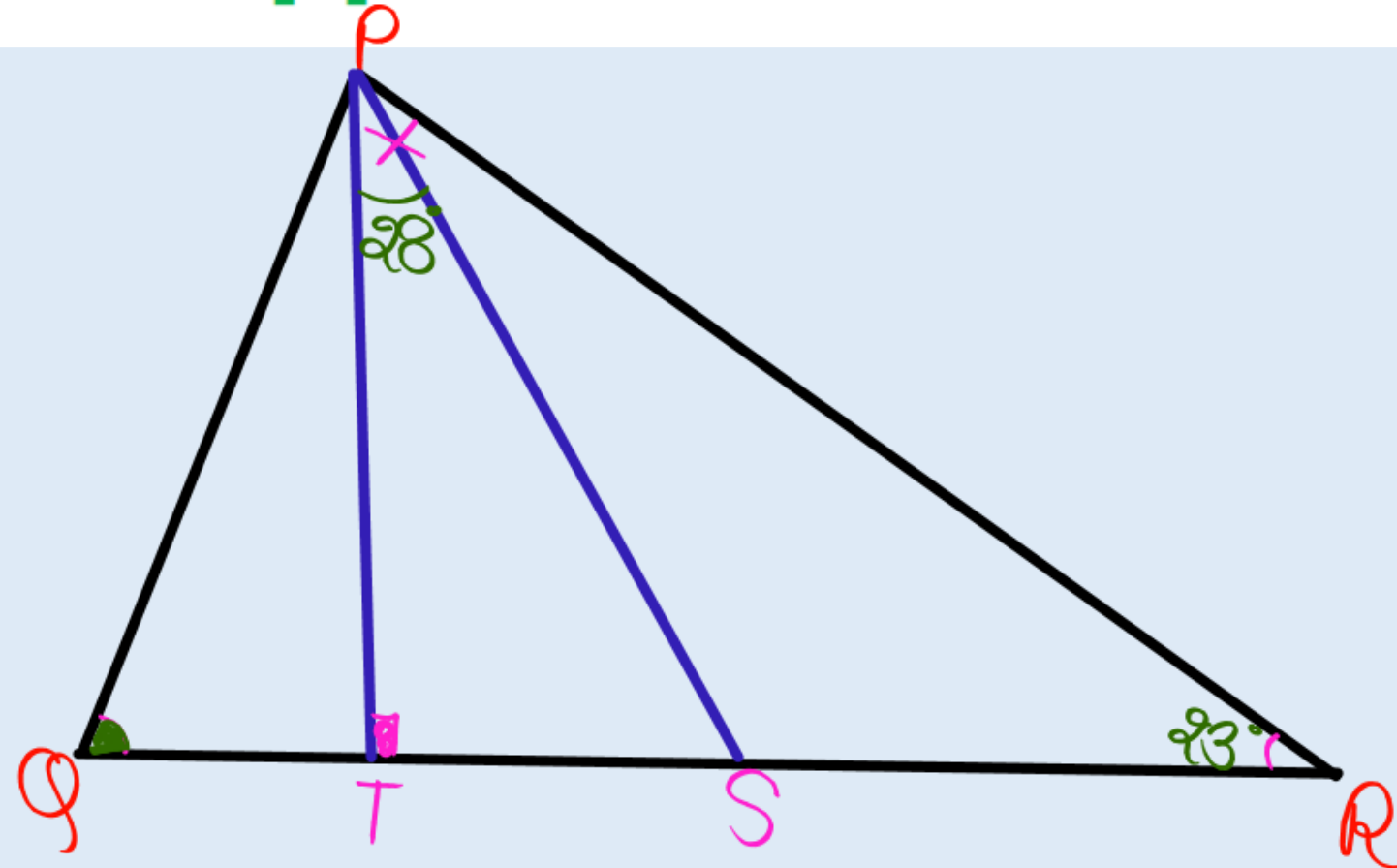
[B] 74°

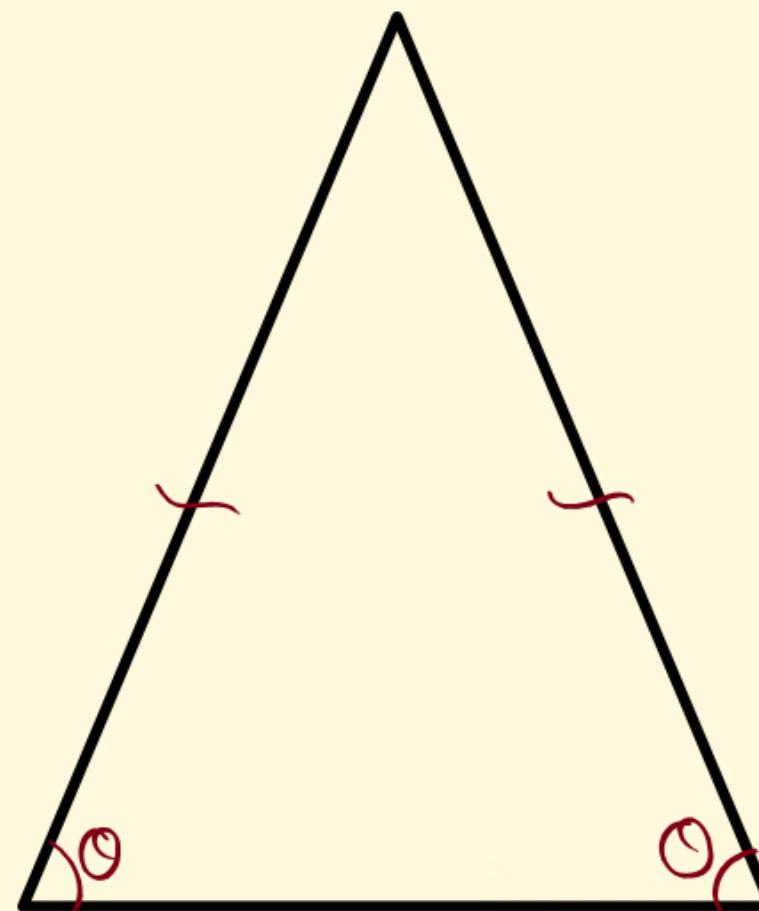
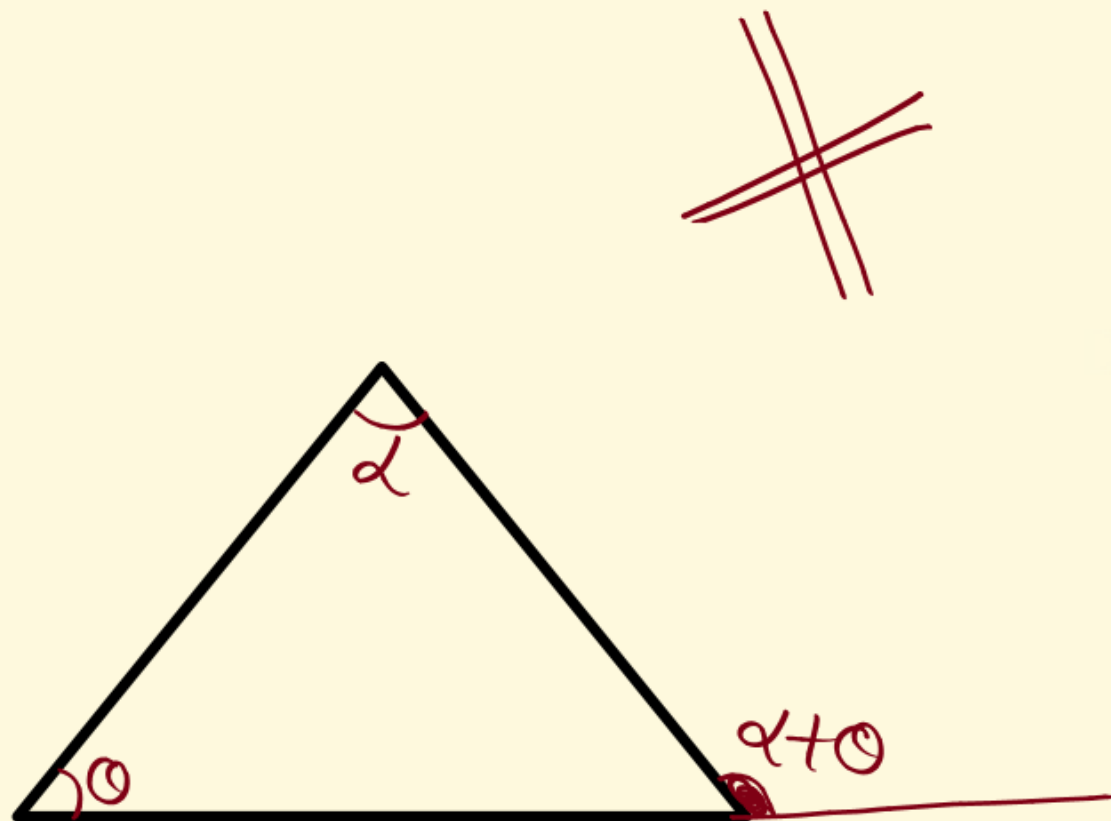
[C] 82°

[D] 89°

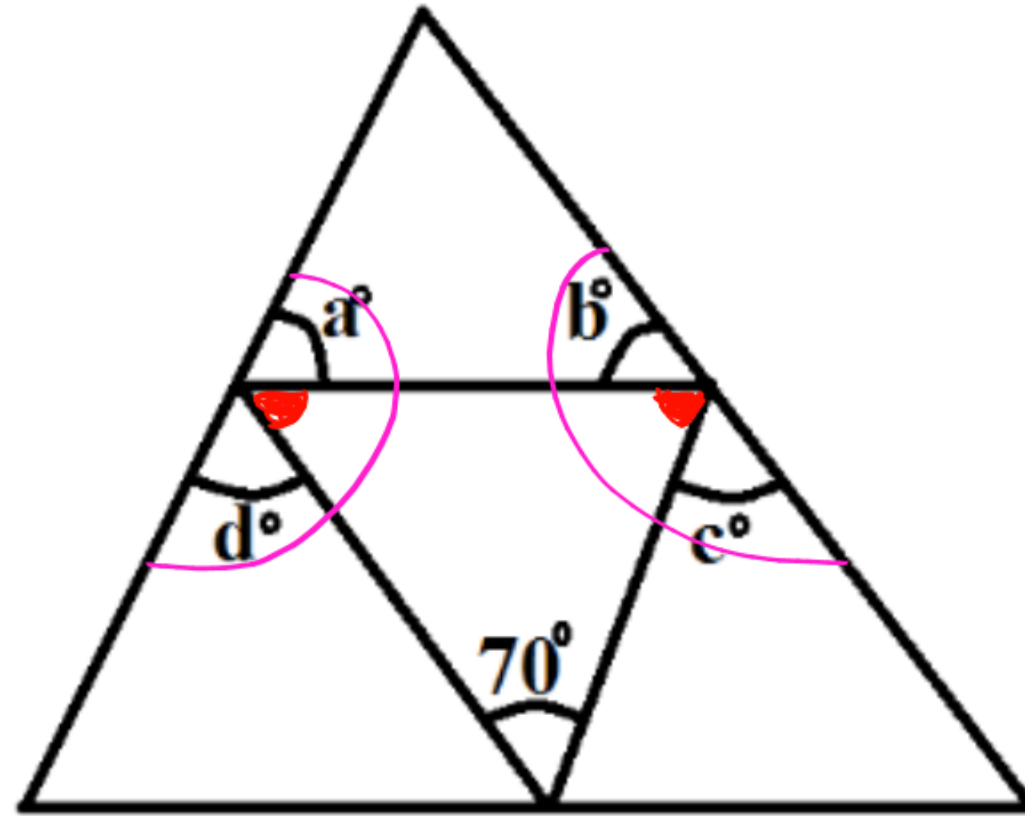
$$28^\circ = \frac{Q - 23^\circ}{2}$$

$$79^\circ = Q$$





9. $a+b+c+d = ?$



[A] 260°

[C] 290°



[B] 250°

[D] 210°

$$a+b+c+d =$$

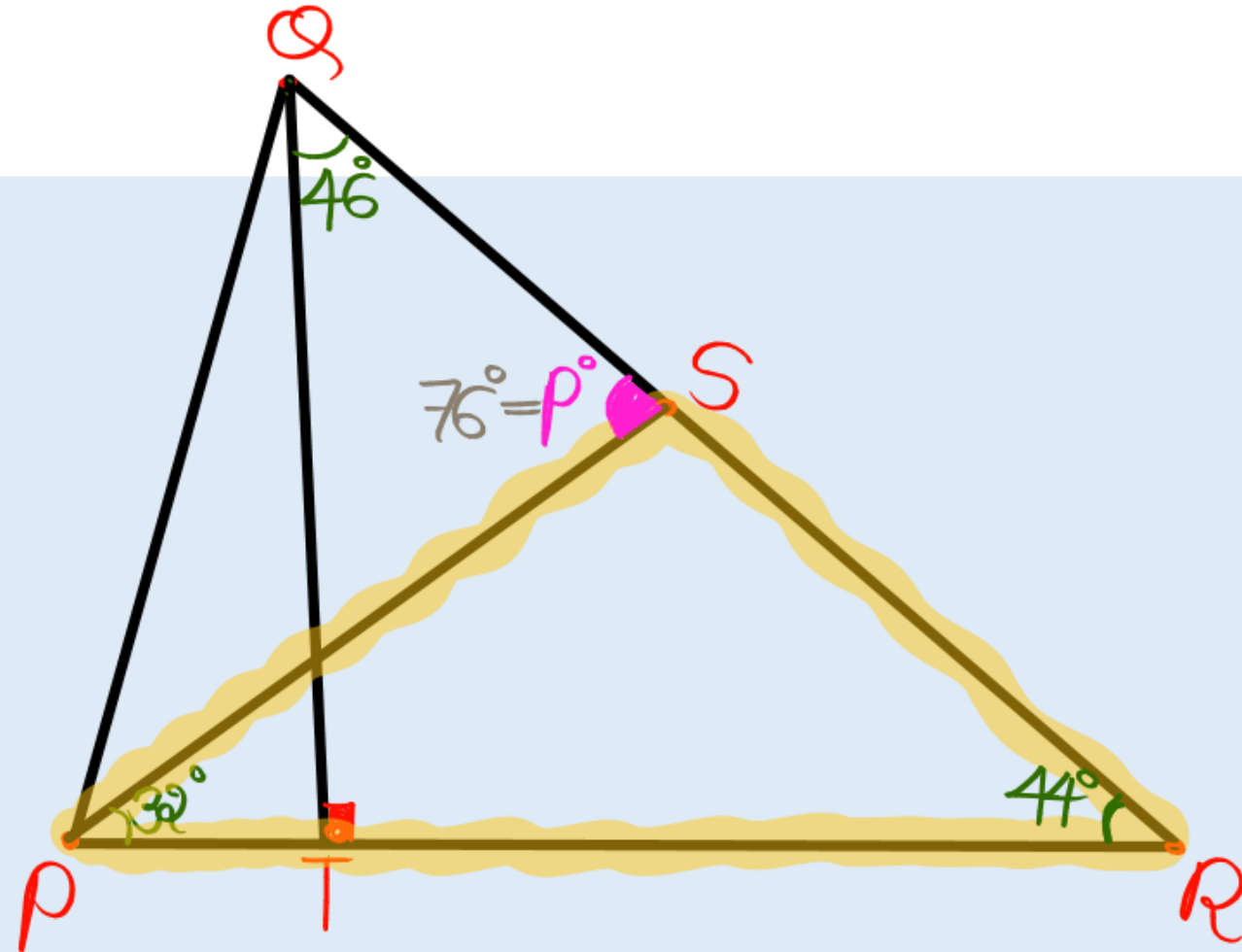
$$360^\circ - 110^\circ = 250^\circ$$

10. In $\triangle PQR$, $QT \perp PR$ and S is a point on QR such that $\angle PSQ = p^\circ$. If $\angle TQR = 46^\circ$, $\angle SPR = 32^\circ$, then the value of P is:

$\triangle PQR$ में, $QT \perp PR$ है और S , QR पर एक बिंदु इस प्रकार है कि $\angle PSQ = p^\circ$ है। यदि $\angle TQR = 46^\circ$ और $\angle SPR = 32^\circ$ है, तो P का मान है:

[A] 76°
[C] 82°

[B] 78°
[D] 72°



11. In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 71^\circ$. E is a point on BC such that $\angle CAE = 57^\circ$. What is the measure of $\angle AEB$?

$\triangle ABC$ में, बिंदु D पर $BD \perp AC$ है और $\angle DBC = 71^\circ$ है। BC पर एक बिंदु E इस प्रकार है कि $\angle CAE = 57^\circ$ है। $\angle AEB$ की माप कितनी है?

[RRB GROUP - D 2025]

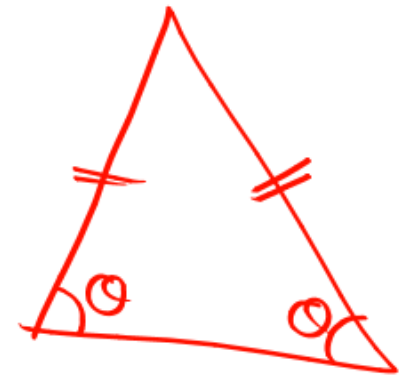
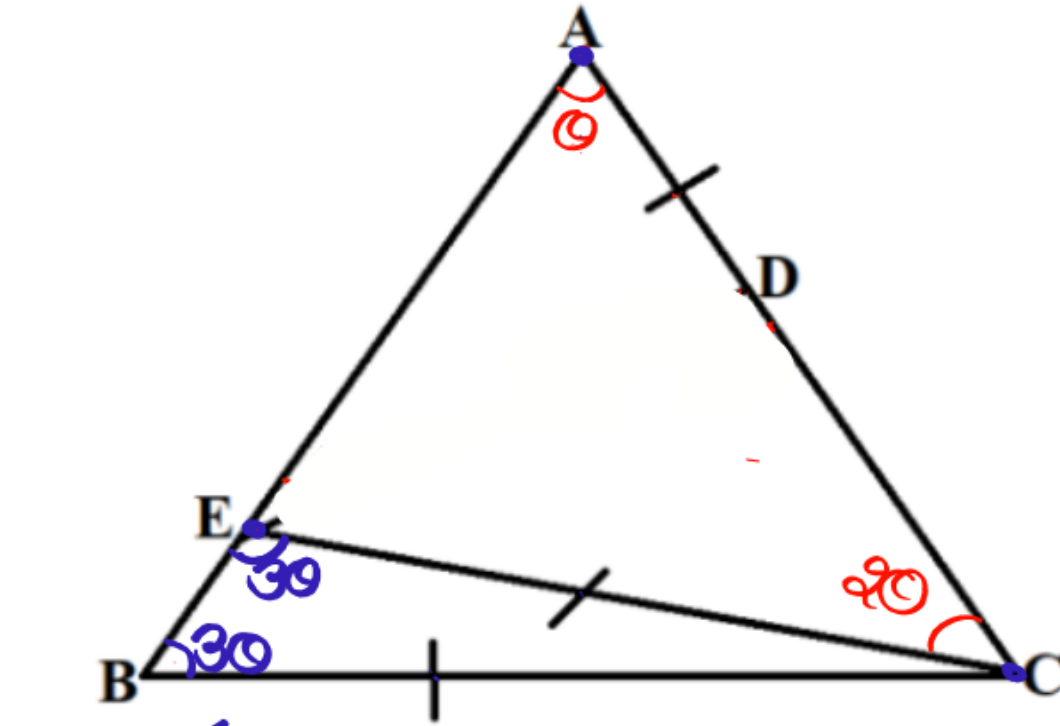
[A] 71°

[C] 62°

~~[B] 76°~~

[D] 68°

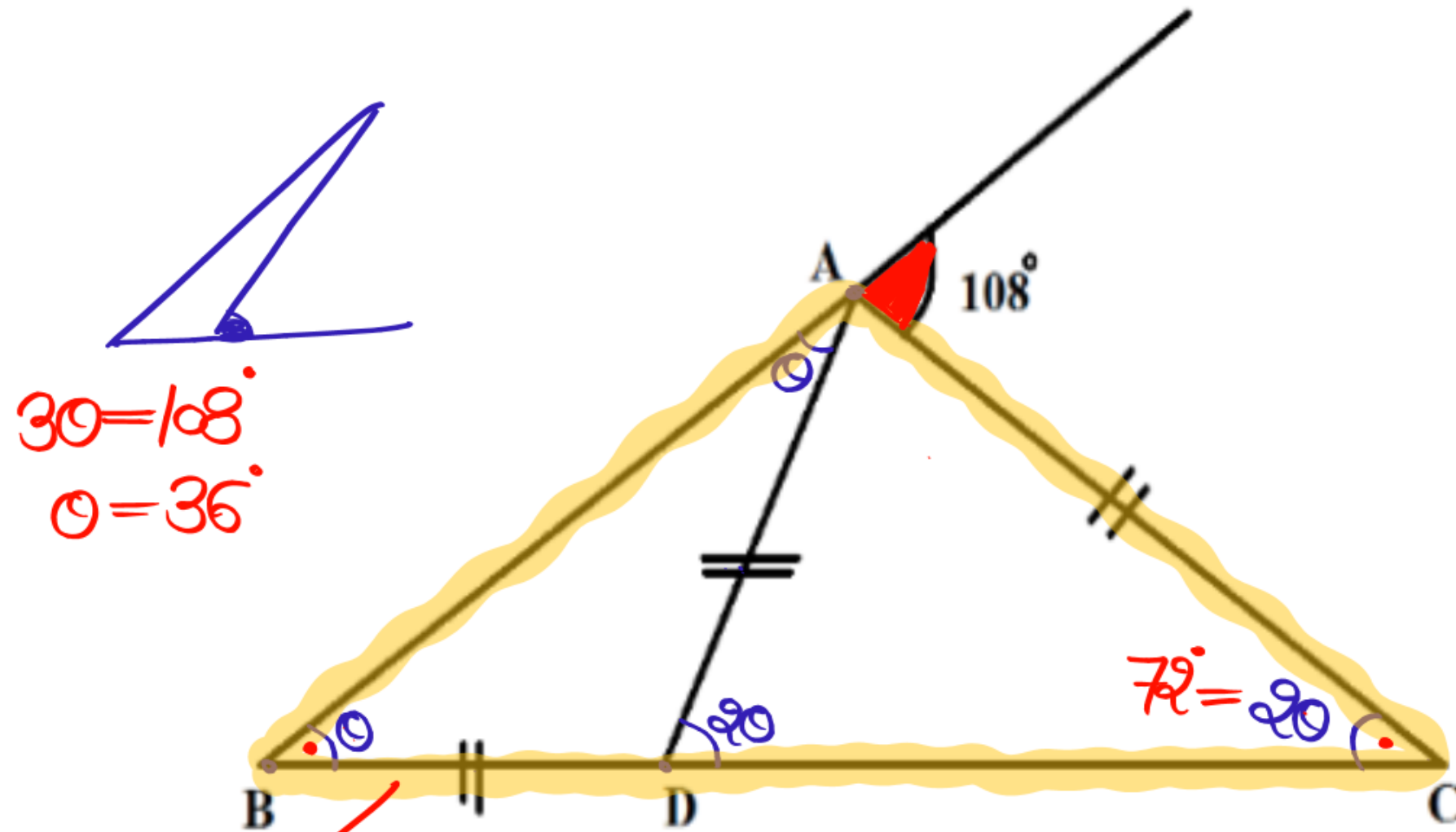
12. In the given $\triangle ABC$, $AD = DE = EC = BC$ then find $\angle A : \angle B$?
दिए गये $\triangle ABC$ में, $AD = DE = EC = BC$ है तब $\angle A : \angle B$ का मान क्या होगा?



☒ [A] 1:3
[C] 2:5

[B] 1:2
[D] Can't be determined

दिए गए त्रिभुज में, यदि $AD=BD=AC$ तब $\angle C$ का मान ज्ञात करें।



✓ [A] 72°
[C] 54°

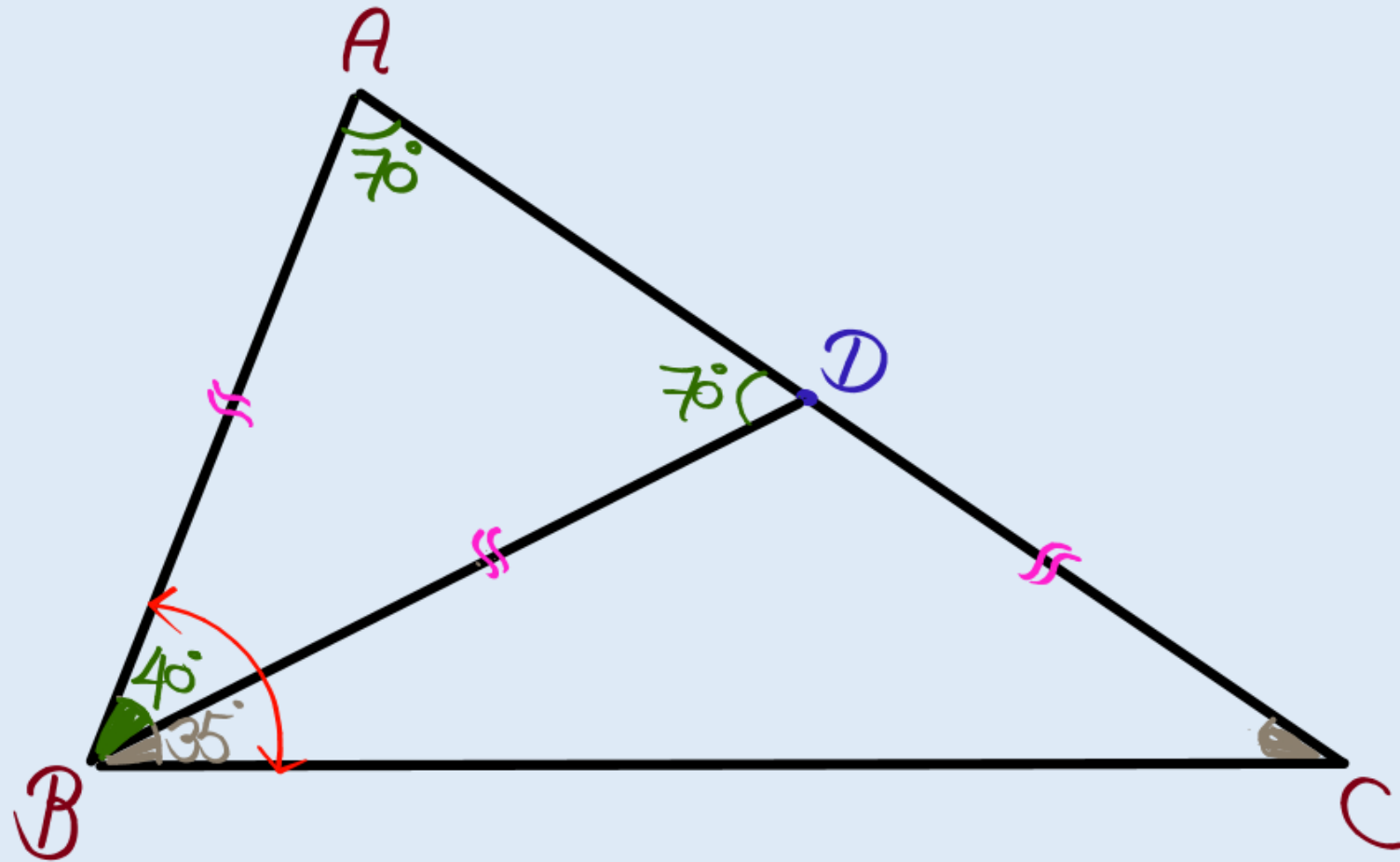
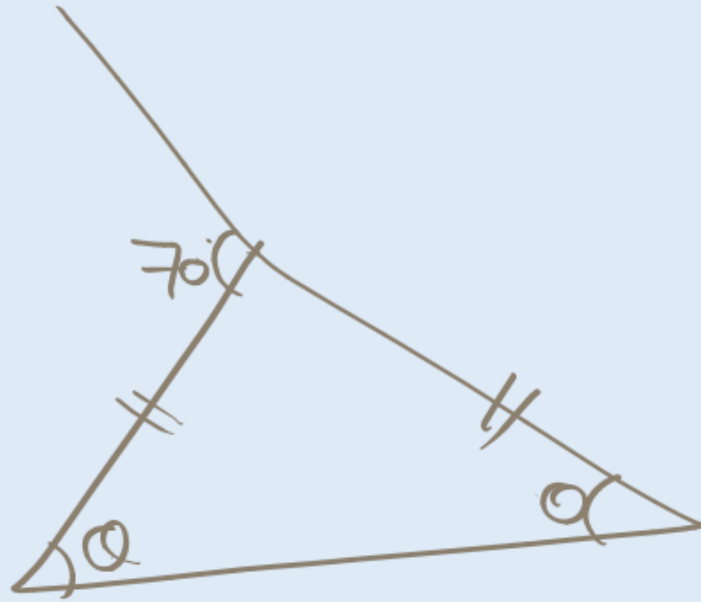
(Best Sol.)

[B] 90°
[D] 64°

14. In $\triangle ABC$, D is a point on AC such that $AB=BD=DC$. If $\angle BAD = 70^\circ$, then the measure of $\angle B$ is:
त्रिभुज ABC में AC पर बिन्दु D इस प्रकार है कि $AB=BD=DC$ । यदि $\angle BAD = 70^\circ$ है तो $\angle B$ का मान होगा?

[A] 75°
[C] 82°

[B] 80°
[D] 70°



15. The side BC of $\triangle ABC$ is produced to a point D. If $AC = BC$ and $\angle BAC = 70^\circ$, then find the value of $2.5 \angle ACD - 1.5 \angle ABC$.

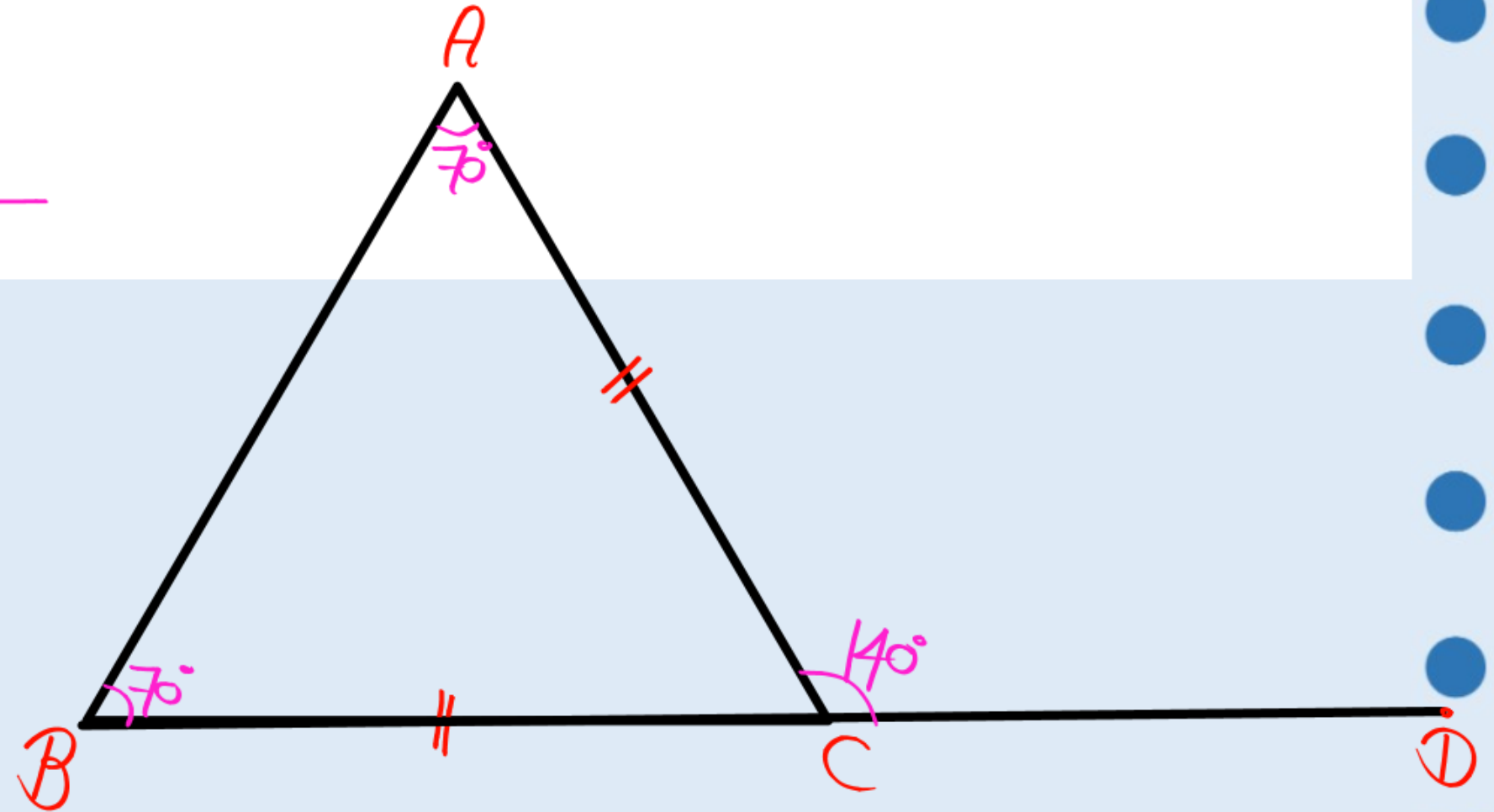
$\triangle ABC$ की भुजा BC को बिंदु D तक बढ़ाया गया है। यदि $AC=BC$ और $\angle BAC=70^\circ$ है, तो $2.5 \angle ACD - 1.5 \angle ABC$ का मान ज्ञात कीजिए।

SSC CGL 2024 Pre

[A] 245°
[C] 225°

[B] 235°
[D] 230°

$$2.5 \times 140^\circ - 1.5 \times 70^\circ$$



16. In a triangle HJK, $HJ = HK$. G is a point on HJ such that $HG = GK = JK$. What is the degree measure of two-third of $(\angle HGK + \angle GKJ)$?

एक त्रिभुज HJK में, $HJ = HK$ है G, HJ पर एक बिंदु इस प्रकार है कि $HG = GK = JK$ है। $(\angle HGK + \angle GKJ)$ के दो-तिहाई की डिग्री माप क्या है?

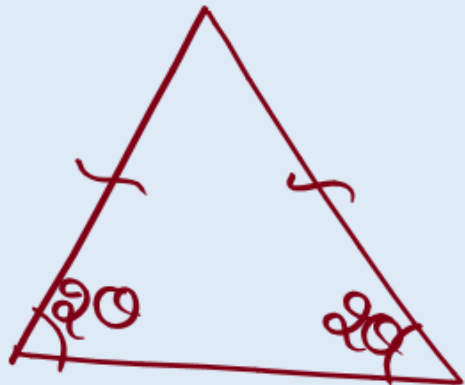
(SSC CGL MAINS 2024)

[A] 96°

[B] 136°

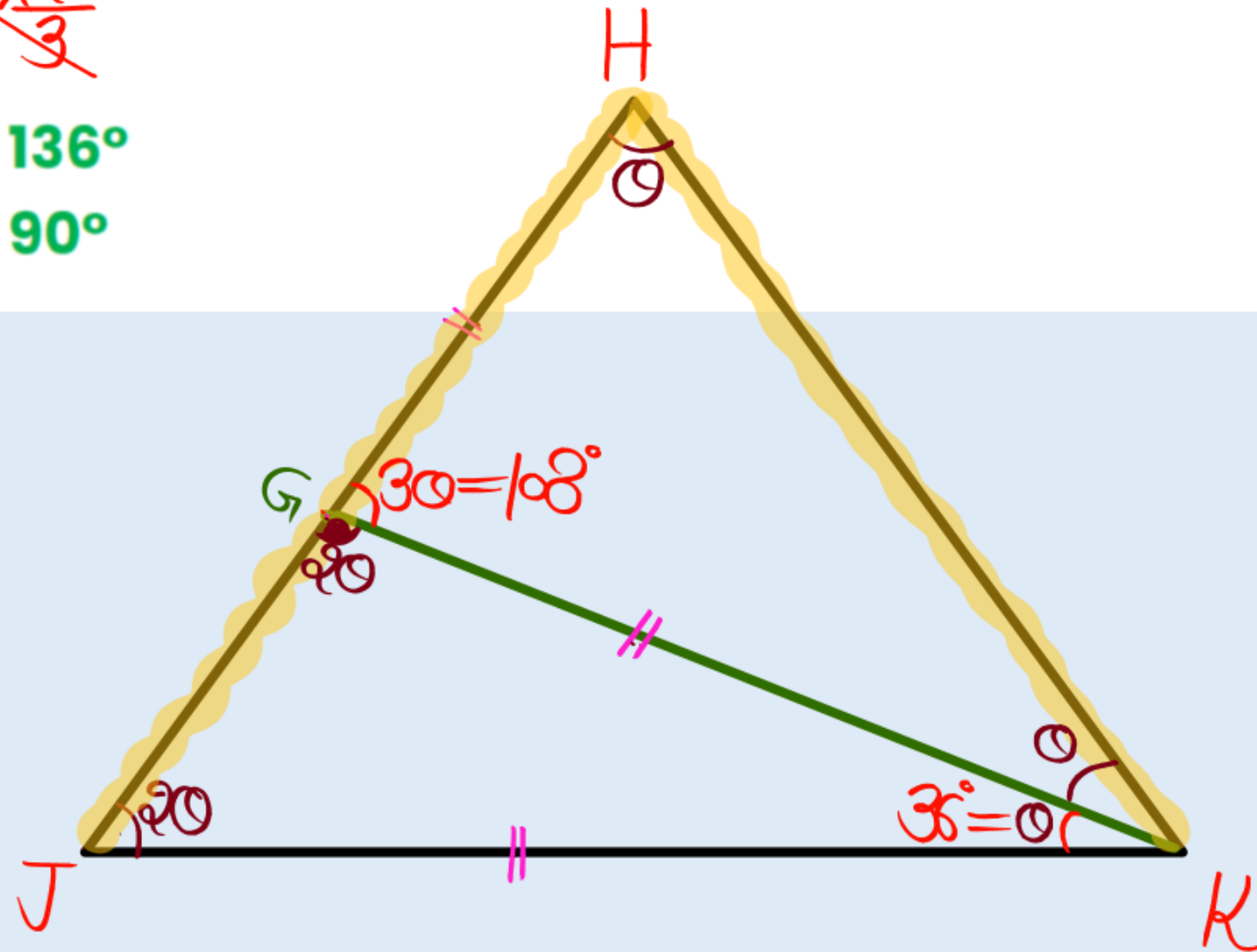
[C] 84°

[D] 90°



$$50 = 180^\circ$$

$$\theta = 36^\circ$$



17. In a $\triangle PQR$, $PQ = PR$, and S is a point on PQ , such that $PS = RS = QR$. Then what is the measure of $\angle QPR$?

$\triangle PQR$ में $PQ=PR$ और, PQ पर S बिन्दू ऐसी स्थिति में है कि $PS= RS= QR$, तो $\angle QPR$ का मान कितना होगा?

[A] 72°

[B] 60°

☒ [C] 36°

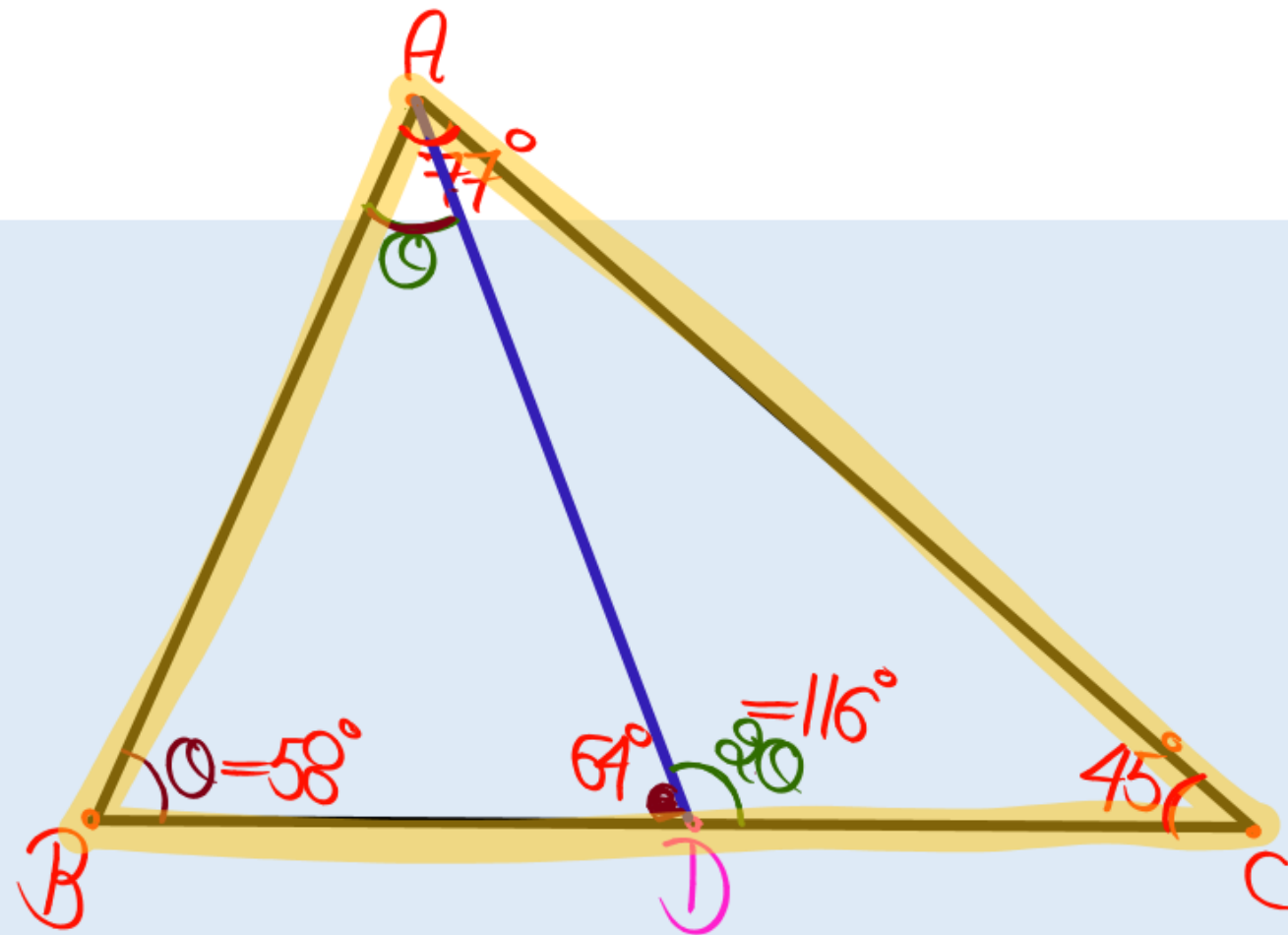
[D] 23°

18. In $\triangle ABC$, D is a point on BC such that $\angle BAD = \frac{1}{2} \angle ADC$ and $\angle BAC = 77^\circ$ and $\angle C = 45^\circ$. What is the measure of $\angle ADB$?

$\triangle ABC$ में, BC पर बिन्दु D इस प्रकार है कि $\angle BAD = \frac{1}{2} \angle ADC$ और $\angle BAC = 77^\circ$ और $\angle C = 45^\circ$ है। $\angle ADB$ की माप ज्ञात करें।

[A] 64°
[C] 45°

[B] 77°
[D] 58°



19. In $\triangle PQR$, $PQ = PR$ and S is a point on QR such that $\angle PSQ = 96^\circ + \angle QPS$ and $\angle QPR = 132^\circ$. What is the measure of $\angle PSR$?

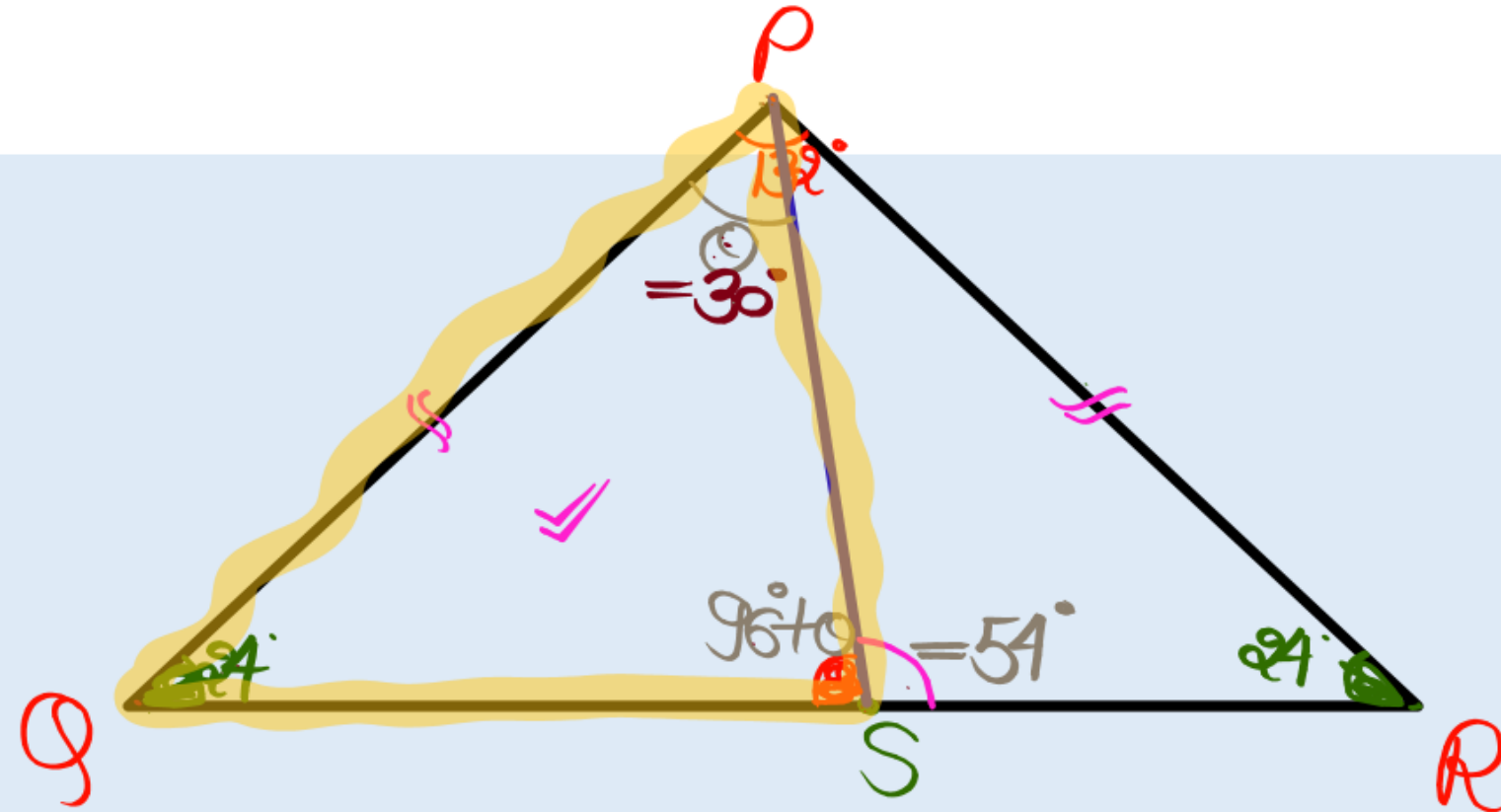
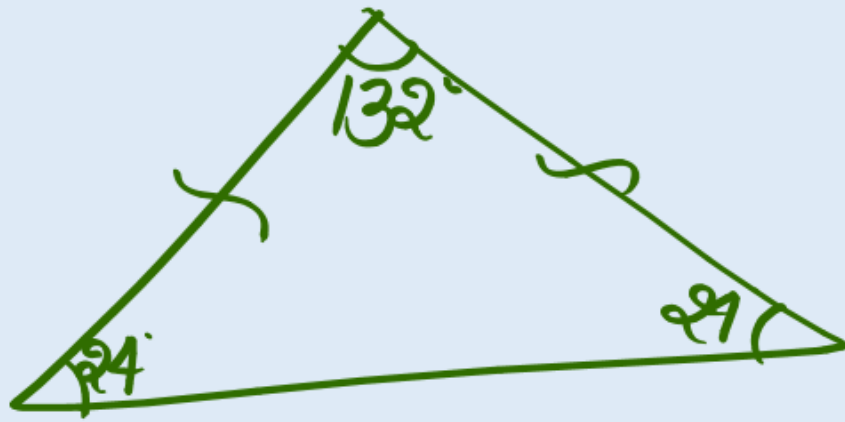
$\triangle PQR$ में, $PQ = PR$ और S रेखा QR पर इस प्रकार स्थित एक बिंदु है कि $\angle PSQ = 96^\circ + \angle QPS$ और $\angle QPR = 132^\circ$ है। तो $\angle PSR$ का माप बताइए।

[A] 45°

[B] 56°

[C] 54° ✓

[D] 52°

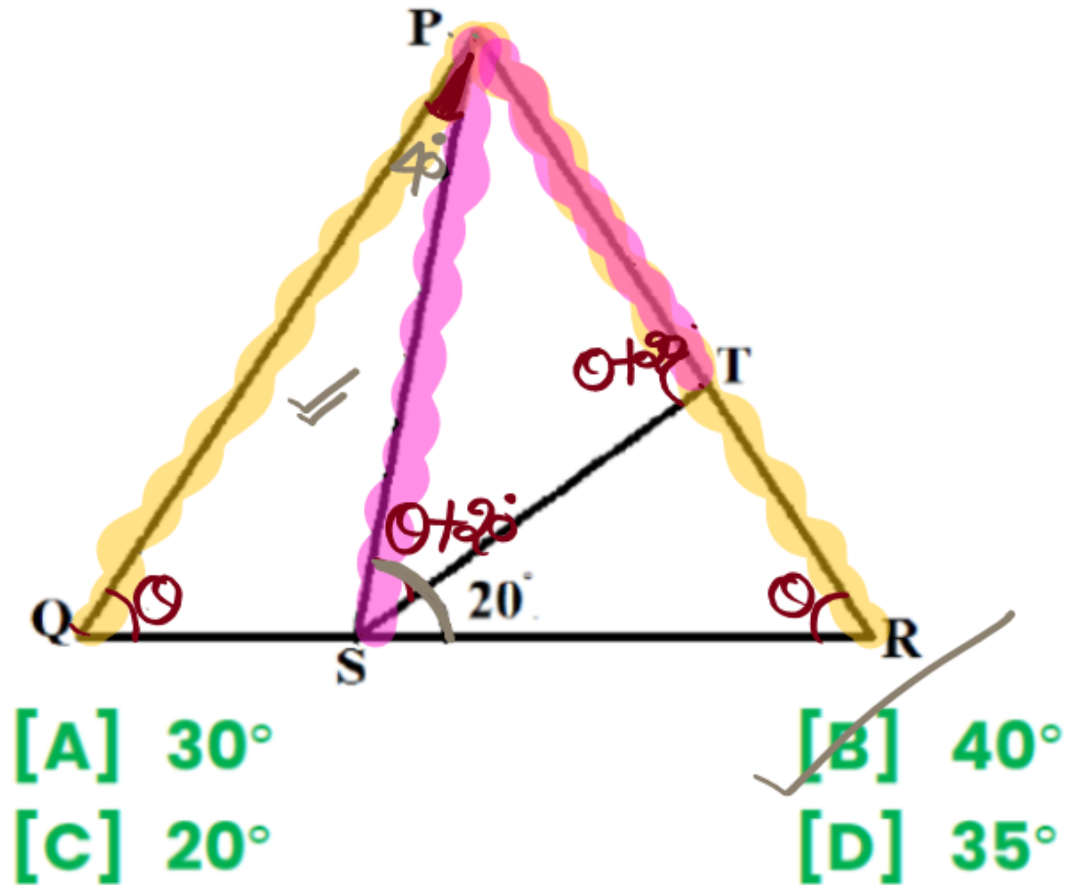


$$20 + 120 = 140$$

$$0 = 30$$

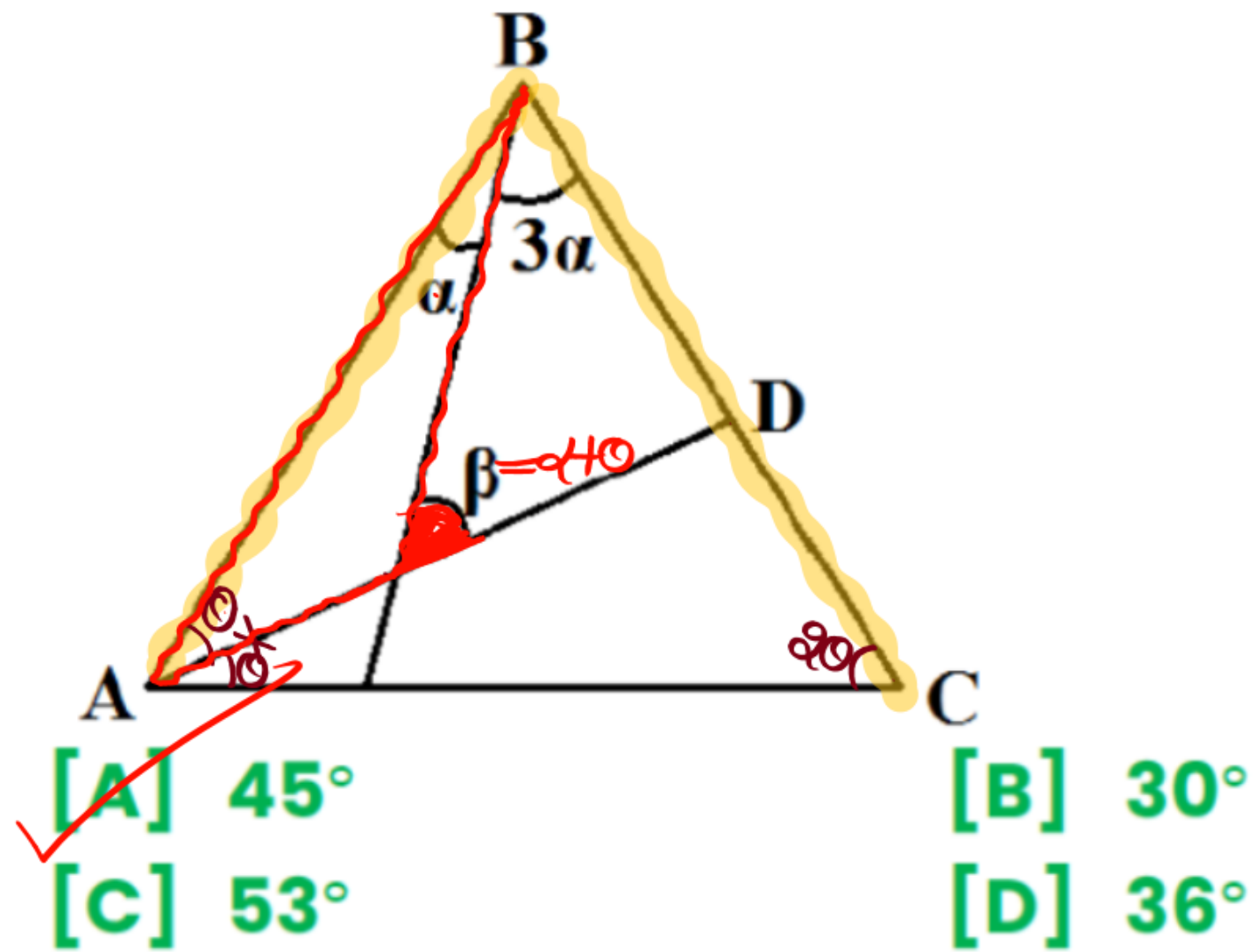
20. In the following figure, PQR is isosceles triangle in which $PQ=PR$, if $PS=PT$ and $\angle TSR = 20^\circ$, then find $\angle QPS = ?$

दिए गए चित्र में, त्रिभुज PQR एक समद्विबाहु त्रिभुज है, $PQ=PR$ यदि $PS=PT$ और $\angle TSR = 20^\circ$ तब $\angle QPS = ?$



21. ABC is an isosceles triangle in which $AB=BC$, AD is angle bisector of $\angle B$, find the value of β ?

ABC एक समद्विबाहु त्रिभुज है जहाँ $AB=BC$, AD कोण $\angle B$ का समद्विभाजक है। β का मान ज्ञात करें।



$$40 + 4\alpha = 180^\circ$$

$$0 + \alpha = 45^\circ$$