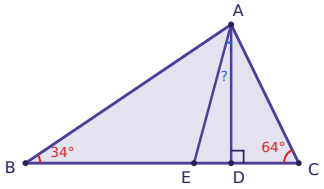
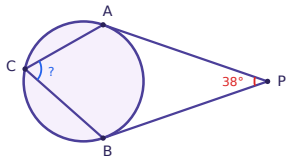
Task card 1 Expert Angle Problems: Triangle Ce...

In triangle ABC, AD is the altitude to BC and AE bisects ∠BAC (D and E lie on BC). If ∠ABC = 34° and ∠ACB = 64°, find ∠DAE.



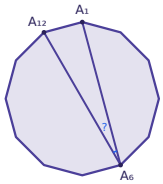
Task card 2 Expert Angle Problems: Triangle Ce...

PA and PB are tangent to a circle at A and B. Point C lies on the major arc AB. If ∠APB = 38°, find ∠ACB.



Task card 3 Expert Angle Problems: Triangle Ce...

$A_1A_2\ldots A_{12}$ is a regular 12-sided polygon. Find $\angle A_1A_6A_{12}$.

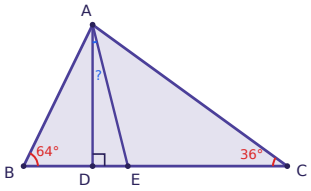


Task card 4 Expert Angle Problems: Triangle Ce...

The sum of all but one of the interior angles of a convex polygon is 3827°. How many sides does the polygon have?

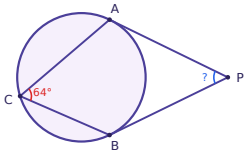
Task card 5 Expert Angle Problems: Triangle Ce...

In triangle ABC, AD is the altitude to BC and AE bisects ∠BAC (D and E lie on BC). If ∠ABC = 64° and ∠ACB = 36°, find ∠DAE.



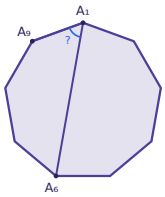
Task card 6 Expert Angle Problems: Triangle Ce...

PA and PB are tangent to a circle at A and B. Point C lies on the major arc AB. If ∠ACB = 64°, find ∠APB.



Task card 7 Expert Angle Problems: Triangle Ce...

$A_1A_2\ldots A_9$ is a regular 9-sided polygon. Find $\angle A_6A_1A_9$.

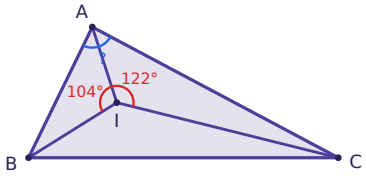


Task card 8 Expert Angle Problems: Triangle Ce...

The sum of all but one of the interior angles of a convex polygon is 2188°. Find the remaining interior angle.

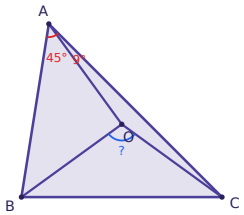
Task card 9 Expert Angle Problems: Triangle Ce...

I is the incenter of triangle ABC (the point where its angle bisectors meet). If $\angle AIB = 104°$ and $\angle AIC = 122°$, find $\angle BAC$.



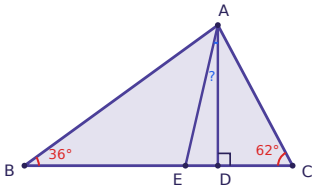
Task card 10 Expert Angle Problems: Triangle Ce...

O is the circumcenter of acute triangle ABC. If $\angle OAB = 45°$ and $\angle OAC = 9°$, find $\angle BOC$.



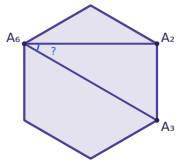
Task card 11 Expert Angle Problems: Triangle Ce...

In triangle ABC, AD is the altitude to BC and AE bisects $\angle BAC$ (D and E lie on BC). If $\angle ABC = 36°$ and $\angle ACB = 62°$, find $\angle DAE$.



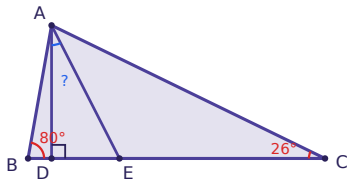
Task card 12 Expert Angle Problems: Triangle Ce...

$A_1A_2\ldots A_6$ is a regular 6-sided polygon. Find $\angle A_2A_6A_3$.



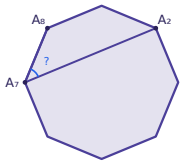
Task card 13 Expert Angle Problems: Triangle Ce...

In triangle ABC, AD is the altitude to BC and AE bisects ∠BAC (D and E lie on BC). If ∠ABC = 80° and ∠ACB = 26°, find ∠DAE.



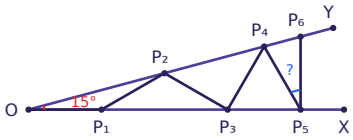
Task card 14 Expert Angle Problems: Triangle Ce...

$A_1A_2\ldots A_8$ is a regular 8-sided polygon. Find $\angle A_2A_7A_8$.



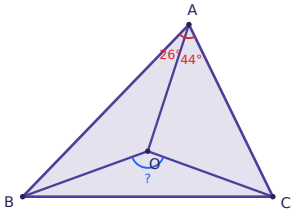
Task card 15 Expert Angle Problems: Triangle Ce...

∠XOY = 15°. Points P_1, P_3, P_5, … lie on ray OX and points P_2, P_4, P_6, … lie on ray OY, each point farther from O than the one before it on the same ray, so that $OP_1 = P_1P_2 = P_2P_3 = \ldots = P_5P_6$. Find $\angle P_4P_5P_6$.



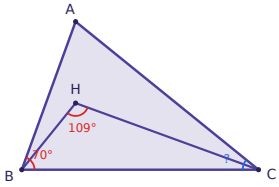
Task card 16 Expert Angle Problems: Triangle Ce...

O is the circumcenter of acute triangle ABC. If ∠OAB = 26° and ∠OAC = 44°, find ∠BOC.



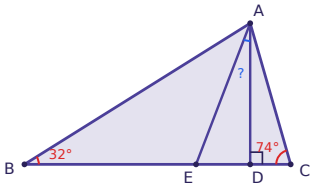
Task card 17 Expert Angle Problems: Triangle Ce...

H is the orthocenter of acute triangle ABC (the point where its altitudes meet). If ∠BHC = 109° and ∠ABC = 70°, find ∠ACB.



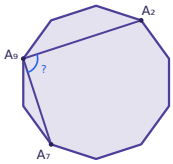
Task card 18 Expert Angle Problems: Triangle Ce...

In triangle ABC, AD is the altitude to BC and AE bisects ∠BAC (D and E lie on BC). If ∠ABC = 32° and ∠ACB = 74°, find ∠DAE.



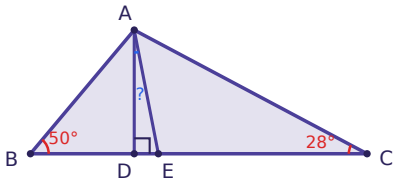
Task card 19 Expert Angle Problems: Triangle Ce...

$A_1A_2\ldots A_{10}$ is a regular 10-sided polygon. Find $\angle A_2A_9A_7$.



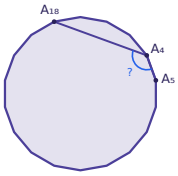
Task card 20 Expert Angle Problems: Triangle Ce...

In triangle ABC, AD is the altitude to BC and AE bisects ∠BAC (D and E lie on BC). If ∠ABC = 50° and ∠ACB = 28°, find ∠DAE.



Task card 21 Expert Angle Problems: Triangle Ce...

$A_1A_2\ldots A_{18}$ is a regular 18-sided polygon. Find $\angle A_5A_4A_{18}$.

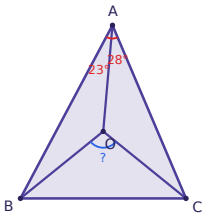


Task card 22 Expert Angle Problems: Triangle Ce...

The sum of all but one of the interior angles of a convex polygon is 3816°. How many sides does the polygon have?

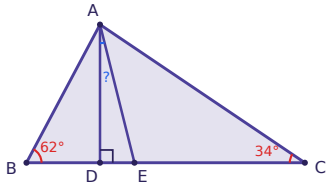
Task card 23 Expert Angle Problems: Triangle Ce...

O is the circumcenter of acute triangle ABC. If ∠OAB = 23° and ∠OAC = 28°, find ∠BOC.



Task card 24 Expert Angle Problems: Triangle Ce...

In triangle ABC, AD is the altitude to BC and AE bisects ∠BAC (D and E lie on BC). If ∠ABC = 62° and ∠ACB = 34°, find ∠DAE.



Expert Angle Problems: Triangle Centers, Circles & Polygons Task Cards

Recording sheet · Grade 10 · Solve each problem. Give angles in degrees. Equal tick marks show equal segments. Figures are not drawn to scale.

Scan to check your answers

Name: _____ Date: _____

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Expert Angle Problems: Triangle Centers, Circles & Polygons Task Cards: Answer Key

Grade 10 · Easy

The answers online

1. 15°	**2.** 71°	**3.** 15°
4. 24	**5.** 14°	**6.** 52°
7. 60°	**8.** 152°	**9.** 88°
10. 108°	**11.** 13°	**12.** 30°
13. 27°	**14.** 45°	**15.** 30°
16. 140°	**17.** 39°	**18.** 21°
19. 90°	**20.** 11°	**21.** 130°
22. 24	**23.** 102°	**24.** 14°