3. PROBLEMS

Problem 1. The measure of an angle whose supplement is $2\frac{1}{2}$ times that of its complement is:

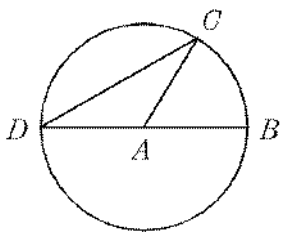
A. 150^o B. 75^o C.60° D. 45^o E. 30^o

Problem 2. The measure of an angle whose complement is one-third that of its supplement is:

A. 75^o B. 45^o C. 60^o D. 135^o E. none of these

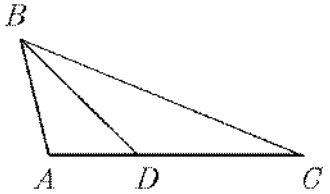
Problem 3. In the figure shown, $\overline{DB}$ is a diameter of the circle with center A. If $\angle CAB = 45°$, then $\angle CDB$ is:

A. 15º B. 20º C. 22. 5º D. 25º E. 27. 5º



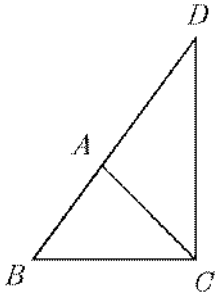
Problem 4. In the given figure $\overline{AB} = \overline{AD}$, $\overline{BD} = \overline{CD}$, and $\angle C = 19°$, What is the measure of $\angle A$?

A. 104° B. 142° C. 76° D. 38° E. none of the above

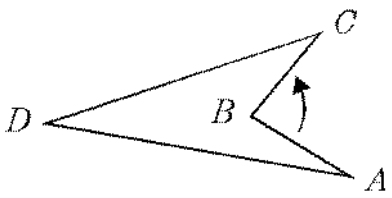


Problem 5. In the figure shown, if $\angle ABC = 55º$, $\angle ACB = 45º$ and $CA = DA$, then $\angle DCB$ is:

A.100º B. 95º C. 90º D. 85º E. 80º



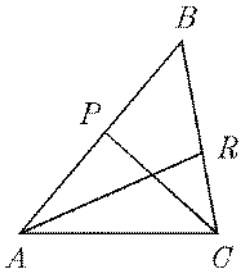
Problem 6. The tip on an arrow has the shape as shown. If the $\angle ABC$ marked by the curved arrow is an acute angle, then the sum of the interior angles of the quadrilateral $ABCD$:



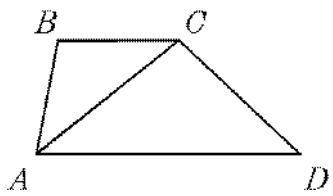
A. is less than 180^o B. is less than 360^o
C. is exactly 360^o D. is more than 360^o
E. none of the above

Problem 7. In triangle ABC, $\angle A = 50^o$, $\angle C = 80^o$. $\overline{CP}$ bisects $\angle C$ and $\overline{AR}$ bisects $\angle A$. What is the measure of $\angle ARC$?

A. 105^o B. 75^o C. 65^o D. 40^o E. 25^o

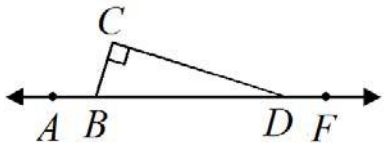


Problem 8. In the adjacent figure, sides $\overline{AD}$ and $\overline{BC}$ are parallel, segments $\overline{AC}$ and $\overline{CD}$ have equal length, $\angle ABC = 95^o$ and $\angle BAC = 35^o$. Then $\angle ACD$ is:



A. 80^o B.90^o C. 100^o D. 120^o
E. none of the above

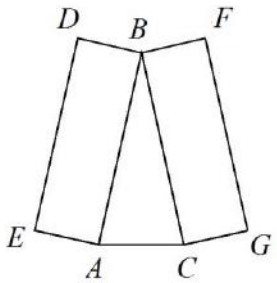
Problem 9. If in the figure, $\angle ABC = 110^o$, and $\angle C$ is a right angle, then $\angle CDF$ equals:



A. 110^o B. 120^o C. 140^o D. 160^o E. 170^o

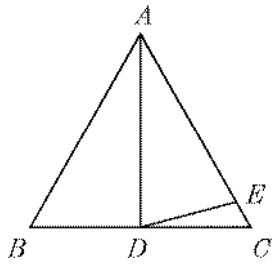
Problem 10. In the figure, $AB = CB$, quadrilaterals $ABDE$ and $CBFG$ are both rectangles, and $\angle BAC = 70°$. Find $\angle DBF$.

A. 105^o B. 110^o C. 120^o D. 130^o E. 140^o



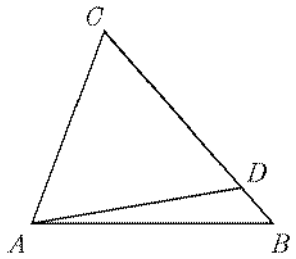
Problem 11. In the figure, ΔABC is equilateral, $\angle DAB = 30^o$, and $AE = AD$. Find $\angle EDC$.

A. 15^o B. 20^o C. $12\frac{1}{2}^o$ D. 30^o E. $7\frac{1}{2}^o$



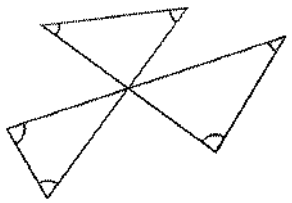
Problem 12. If in ΔABC, $AC = CD$ and $\angle CAB - \angle ABC = 30^o$, then $\angle BAD$ is:

A. 10^o B. 15^o C. 20^o D. $22\frac{1}{2}^o$ E. 30^o



Problem 13. In the given figure, the sum of the marked angles is:

A. 180^o B. 360^o C. 540^o D. 270^o E. cannot be determined.

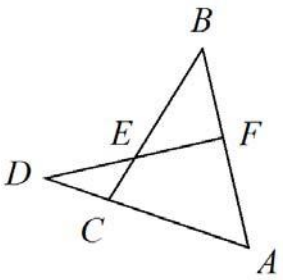


Problem 14. If the measures of two angles of a triangle are $(45 + x)$ degrees and $(45 - x)$ degrees, what is the measure of the third angle?

A. 45^o B. 60^o C. 90^o D. 180^o E. 135^o

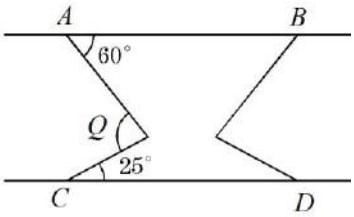
Problem 15. $\overline{DF}$ and $\overline{CB}$ intersect at E, $\overline{DA}$ and $\overline{CB}$ intersect at C, $\overline{AB}$ and $\overline{DF}$ intersect at F, $\overline{DF} \perp \overline{BA}$, $\angle FEC = 160^o$. $\angle A = \angle B$. $\angle ECA$ equals:

A. 20^o B. 40^o C. 60^o D. 70^o E. 140^o



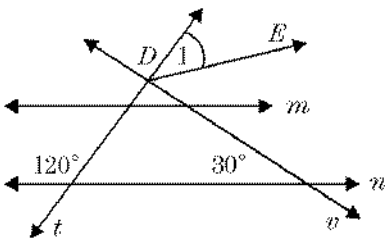
Problem 16. Find the measure of $\angle Q$ if $\overleftrightarrow{AB} // \overleftrightarrow{CD}$.

A.105^o B. 90^o C. 85^o D. 60^o E. 25^o



Problem 17. $m // n$, t and v are transversals intersecting at D; $\overline{DE}$ bisects the angle indicated. Determine measure of $\angle 1$.

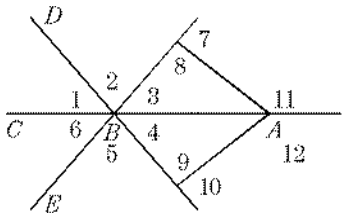
A. 30^o B. 45^o C. 60^o D. 90^o E. none of these



Problem 18. If $\overline{BC}$ bisects $\angle DBE$ and $\angle 7 = \angle 10$, then:

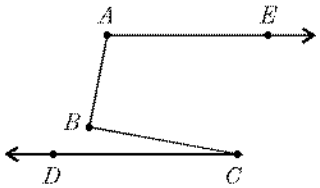
A. $\angle 3 \cong \angle 4$ B. $\angle 8 \cong \angle 9$ C. $\angle 11 \cong \angle 12$

D. *A* and *B* E. *A*, *B*, *C*



Problem 19. In the figure shown, $\overrightarrow{AE}$ is parallel to $\overrightarrow{CD}$ and *B* is a point between the rays. If the measure of $\angle BAE$ is 100^o and the measure of $\angle ABC = 90^o$, find the measure of $\angle BCD$.

A. 5^o B. 90^o C. 100^o D. 30^o E .10^o



Problem 20. What is the measure of an acute angle if twice the measure of its supplement is 27 more than five times the measure of its complement?

A. 17 B. 23 C. 31 D. 39 E. 47

Problem 21. The complement of an angle is $\frac{1}{7}$ of the supplement of that angle. What is the complement?

A. 15^o B. 60^o C. 75^o D.105^o E. 120^o

Problem 22. Find an angle whose supplement is 6 times the size of its complement.

A.30^o B. 36^o C.60^o D.72^o E. $\frac{180°}{7}$

Problem 23. $\overrightarrow{OB}$ bisects $\angle AOC$. If $\angle AOB = 2x + 10$ and $\angle BOC = 8x - 14$, what is $\angle AOC$?

A. 22^o B. 25^o C. 36^o D. 40^o E. 44^o

Problem 24. Twice the measure of the supplement of an angle is added to three times the measure of the complement of the same angle. The sum is the measure of an interior angle of a regular nine-sided polygon. What is the measure of the supplement of the angle?

A.82^o B. 86° C. 90^o D. 94° E. none of these

Problem 25. $\overrightarrow{OB}$ bisects $\angle AOC$. If $m\angle AOB = 3x + 16$ and $m\angle BOC = 8x - 14$, then $m\angle AOC =$

A. 6 B. 20 C. 34 D. 56 E. 68