MATHS

BOOKS - NAVBODH MATHS (HINGLISH)

LINE AND ANGLES

Exercise 6 1

1. In Figure, lines $AB\ and\ CD$ intersect at O. If $\angle AOC + \angle BOE = 70^0\ AND\ \angle BOD = 40^0$, find $\angle BOE$ and reflex $\angle COE$

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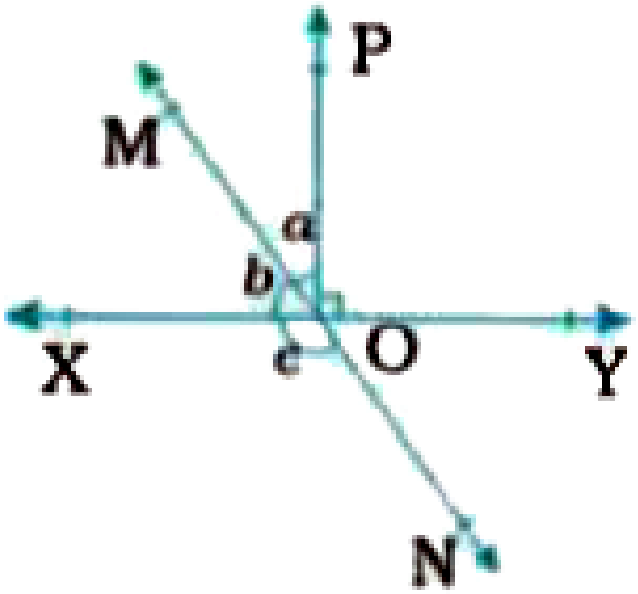
2. In the given figure, lines XY and MN intersect at O. If $\angle POY = 90^\circ$ and $a : b = 2 : 3$,then find c.



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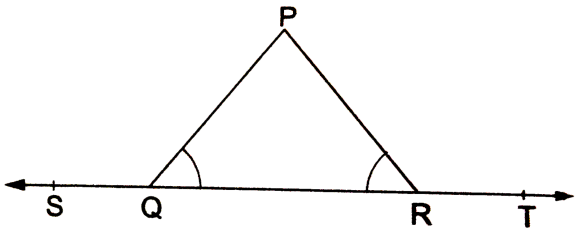
3. In the given figure , if $\angle PQR = \angle PRQ$ then prove that $\angle PQS = \angle PRT$.



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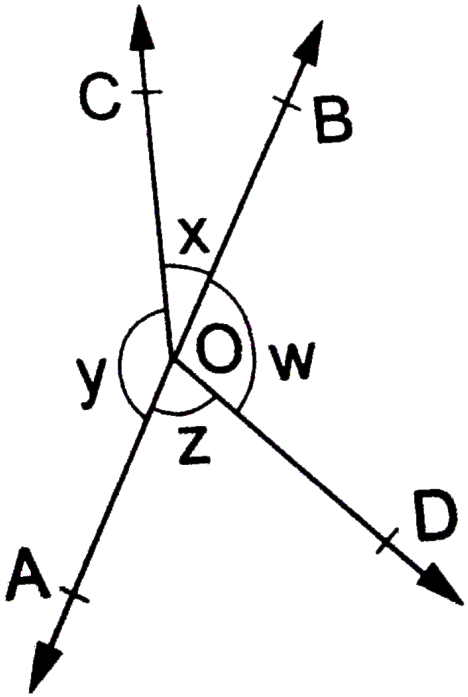
4. In the given figure, if $x + y = z + w$ then prove that AOB is a line.



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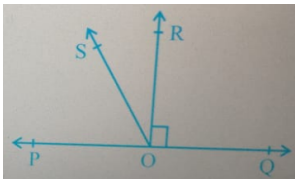
5. In Fig. 6.17, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray

lying between rays OP and OR. Prove that $\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$.



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6. It is given that $\angle XYZ = 64o$and XY is produced to point P. Draw a figure from the given information. If ray YQ bisects $\angle ZYP$, find $\angle XYQ$and $reflex\angle QYP$.

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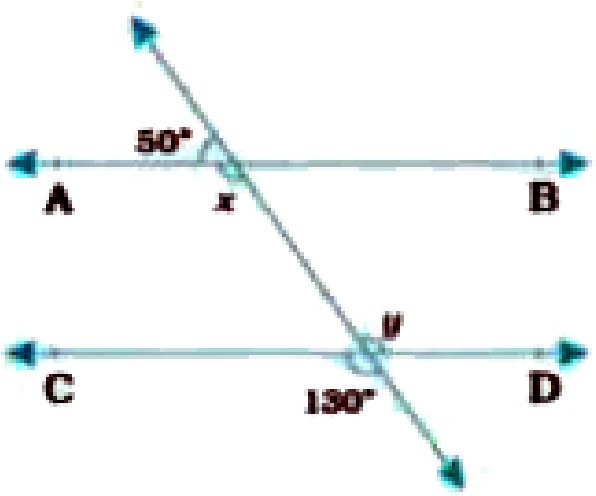
Exercise 6 2

1. In the given figure, find the values of x and y and then show that $AB \parallel CD$.



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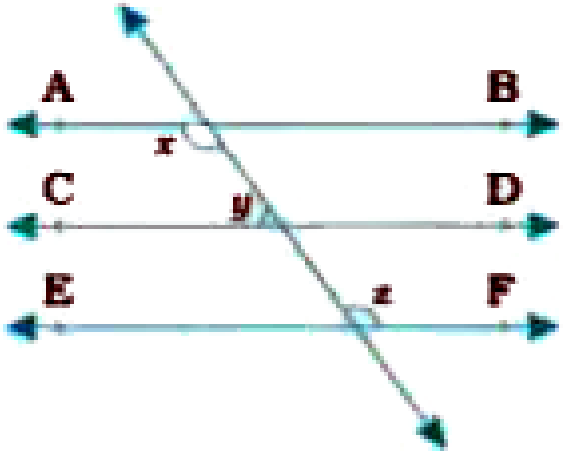
2. In the given figure, if $AB||CD, CD||EF$ and $y: z = 3: 7$, then find x.



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3. In Figure, if $AB \mid\mid CD$, $EF \perp CD$ and $\angle GED = 126^0$, find

$\angle AGE,\ \angle GEF\ and\ \angle FGE$

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4. In the given figure, if $PQ \mid\mid ST, \angle PQR = 110^\circ$ and $\angle RST = 130^\circ$, then find $\angle QRS$.

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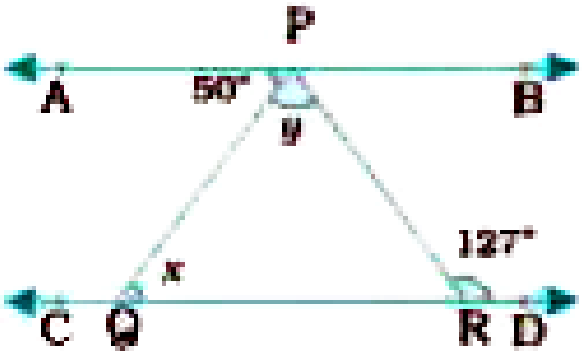
5. In the given figure, if $AB \mid\mid CD, \angle APQ = 50^\circ$ and

$\angle PRD = 127^\circ$, find x and y.



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6. In Fig. 6.33, PQ and RS are two mirrors placed parallel to each other. An incident ray AB strikes the mirror PQ at B, the reflected ray moves along the path BC and strikes the

mirror RS at C and again reflects back along CD. Prove that AB || CD.

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Exercise 6 3

1. In figure, sides QP and RQ of PQR are produced to point S and T respectively. If $\angle SPR = 135^0$ and $\angle PQT = 110^0$, find $\angle PRQ$. Figure

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2. In Figure, $\angle X = 62^0$, $\angle XYZ = 54^0$. If YO and ZO are bisectors of $\angle XYZ$ and $\angle XZY$ respectively of XYZ, find $\angle OZY$ and $\angle YOZ$

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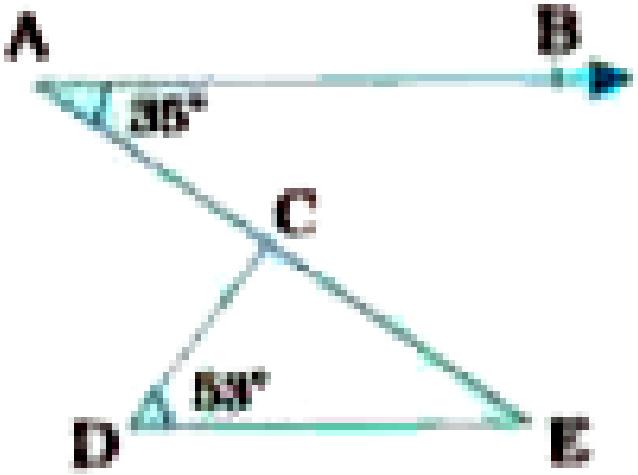
3. In the given figure, if $AB \| DE$, $\angle BAC = 35^\circ$ and $\angle CDE = 53^\circ$, then find

$\angle DCE$.



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4. In figure, if lines PQ and RS intersect at a point T such that $PRT = 40^0$, $\angle RPT = 95^0$ and $\angle TSQ = 75^0$, find $\angle SQT$. Figure

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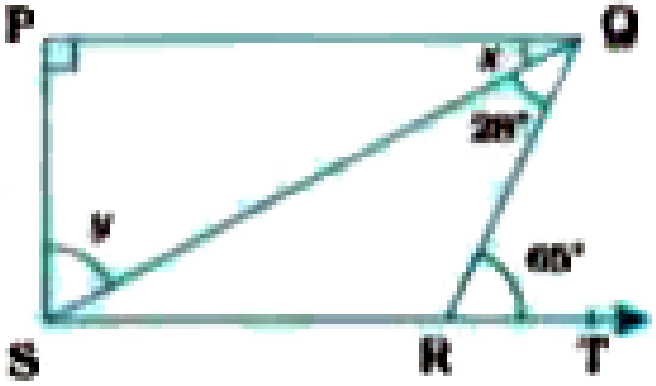
5. In the given figure, if $PQ \perp PS, PQ \| SR, \angle SQR = 28^\circ$ and $\angle QRT = 65^\circ$, then find the values of x and y.



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6. In Fig. 6.44, the side QR of PQR is produced to a point S. If the bisectors of $\angle PQR\ \backslash\ and \angle PRS$ meet at point T, then prove that $\angle QTR = \frac{1}{2}\angle QPR$.

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1. Om Figure, lines PQ and RS intersect each other at point O. If $\angle POR : \angle ROQ = 5 : 7$, find all the angles. Figure

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2. In Figure, ray OS stand on a line POQ. Ray OR and ray OT are angle bisectors of $\angle POS \, and \, \angle SOQ$ respectively. If $\angle POS = x,$ find $\angle ROT$

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3. In Fig. 6.11, OP, OQ, OR and OS are four rays. Prove that

$\angle POQ + \angle QOR + \angle SOR + \angle POS = 360o$

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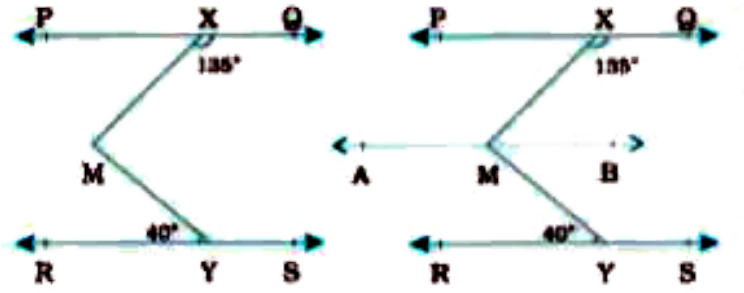
4. In the given figure 1, if $PQ \mid\mid RS, \angle MXQ = 135^\circ$ and $\angle MYR = 40^\circ$, find $\angle XMY$.



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5. If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

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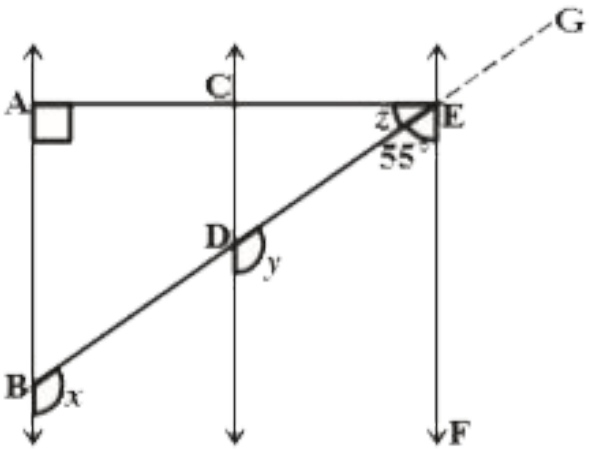
6. In the given figure AB || CD and CD || EF. Also EA $\perp$ AB. If $\angle BEF = 55^\circ$, find the values of

x, y and z.



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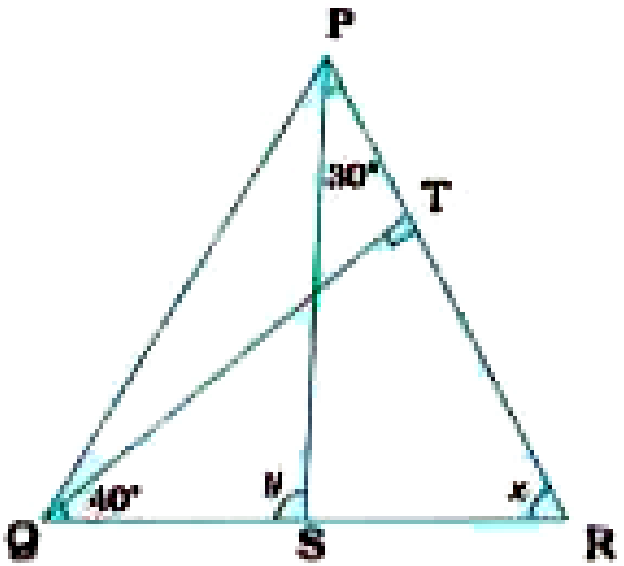
7. In the given figure, if $QT \perp PR, \angle TQR = 40^\circ$ and $\angle SPR = 30^\circ$,

find x and y.



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8. In Fig. 6.38, the sides AB and AC of ABC are produced to points E and D respectively. If bisectors BO and CO of CBE and BCD

respectively meet at point O, then prove that $\angle BOC = 90o - \frac{1}{2}\angle BAC.$

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Skill Testing Exercise

1. If $\angle A$ and $\angle B$ are supplementary angles, where $\angle A = x + 10^\circ$ and $\angle B = x - 10^\circ$, then find $\angle A$ and $\angle B$.

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2. Given that $\angle A$ and $\angle B$ are supplementary angles. If $\angle A : \angle B = 7 : 8$, then find $\angle A$ and $\angle B$.

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3. $\angle A$ and $\angle B$ are complementary angles. If $\angle A = x + 20^\circ$ and $\angle B = x - 10^\circ$, find $\angle A$ and $\angle B$.

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4. Given that $\angle A$ and $\angle B$ are complementary angles. If $\angle A = \angle B + 20^\circ$, then find $\angle A$ and $\angle B$

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5. Given that $\angle X$ and $\angle Y$ are supplementary angles. If $\angle X = 5\angle Y$, then find $\angle X$ and $\angle Y$.

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6. $\angle P$ and $\angle Q$ are supplementary angles. If $\angle P = \angle Q - 40^\circ$, then find $\angle P$ and $\angle Q$.

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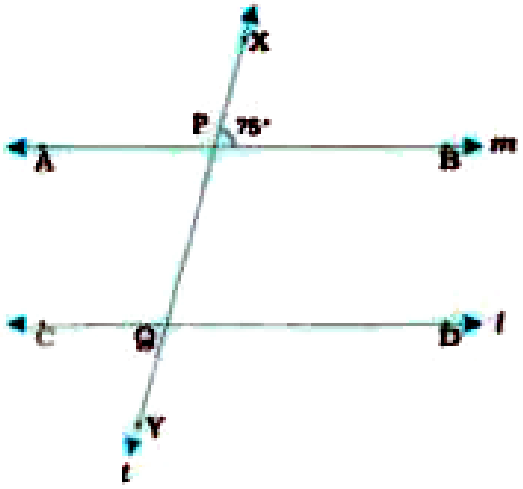
7. In the following figure, l II m and t is their transversal. If $\angle XPB = 75^\circ$, find

$\angle PQD$, $\angle CQY$ and $\angle APQ$



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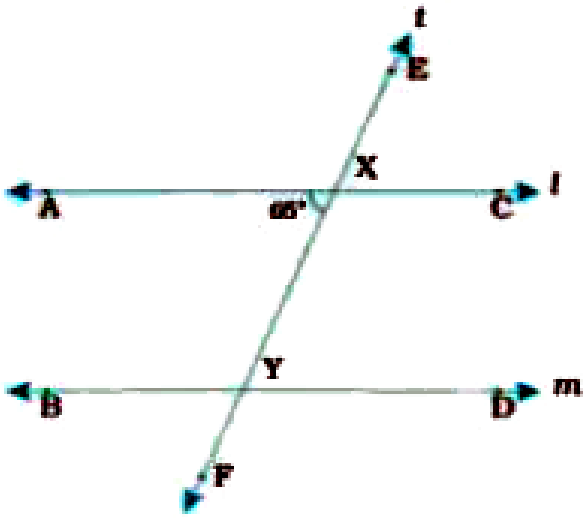
8. In the following l II m and t is their transversal. If $\angle AXY = 65^\circ$, find

$\angle BYF$, $\angle XYD$, $\angle EXC$ and $\angle YXC$.



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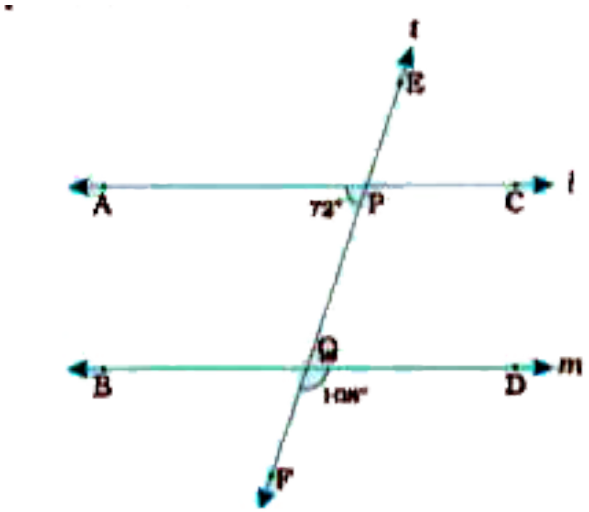
9. In the following figure, t is the transversal of l and m. If $\angle APQ = 72^\circ$ and $\angle DQF = 108^\circ$

, then prove that $l \| m$.



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10. Ray AX is the bisector of $\angle BAC$ and ray AY is the bisector of $\angle XAC$. If $\angle BAY = 60^\circ$, find $\angle BAC$.

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11. Ray EX is the bisector of $\angle DEF$ and ray EY is the bisector of $\angle DEX$. If $\angle DEX = 42^\circ$, then find $\angle YEF$ and $\angle DEF$.

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12. $\angle X$ and $\angle Y$ are supplementary angles. If $\angle X : \angle Y = 25 : 11$, then find $\angle X$ and $\angle Y$.

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13. If $\angle A$ and $\angle B$ are supplementary angles. If $4\angle A = 5\angle B$, then find $\angle A$ and $\angle B$.

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14. In ΔABC, $\angle A : \angle B : \angle C = 3 : 4 : 5$. Find the measure of each angle of ΔABC.

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15. In $\Delta ABC, \angle A = \frac{\angle B + \angle C}{3}$ and $\angle B : \angle C = 2:1$. Find the measure of each angle of ΔABC and state the type of ΔABC.

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16. Side BC of ΔABC is extended on both the sides so that exterior angles $\angle ABD$ and $\angle ACE$ are formed. If $\angle ABD = 90^\circ$ and $\angle ACE = 130^\circ$, find the measure of each angle of ΔABC.

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17. The side BC of ΔABC is product to N. bisector of angle meets BC at M. Prove that $\angle ABC + \angle ACN = 2\angle AMC$

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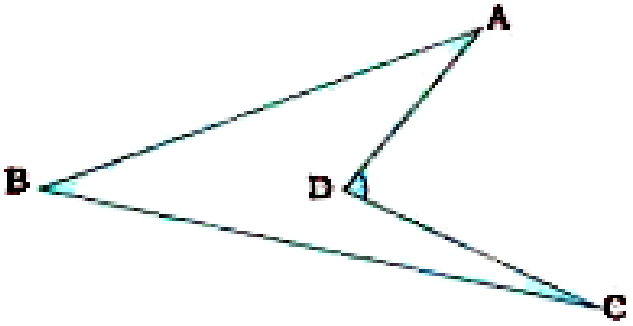
18. For the figure given below, prove that $\angle ADC = \angle A + \angle B + \angle C$



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19. In ΔABC, bisectors of $\angle B$ and $\angle C$ interesct each other at point O. Prove that $\angle BOC = 90^\circ + \frac{1}{2}\angle A i.e., \angle 1 = 90^\circ + \frac{1}{2}$

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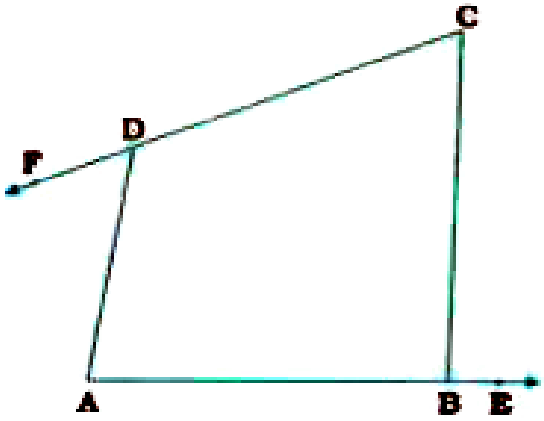
20. For the figure below, prove that $\angle CBE + \angle ADF = \angle DAB + \angle DCB.$



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21. Prove that the sum of the angles of a quadrilateral is 360° .

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Multiple Choice Questions Mcqs

1. The measure of the complementary angle of an angle with measure 40° is .....

A. 40°

B. 20°

C. 140°

D. 50°

Answer:

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2. The measure of the supplementary angle of an angle with measure 70° is ..... .

A. 20°

B. 35°

C. 70°

D. 110°

Answer: D

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3. $\angle ABC$ and $\angle ABD$ form a linear pair. If $\angle ABC = 30^\circ$, then $\angle ABD =$ .....

A. 30°

B. 60°

C. 150°

D. 15°

Answer: C

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4. $\angle P$ and $\angle Q$ are supplementary angles such that $\angle P = 2x - 5$ and $\angle Q = 3x + 10$. Then, find $\angle Q$.

A. 35°

B. 65°

C. 105°

D. 115°

Answer: D

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5. The measure of an angle is four times the measure of its complementary angle. Then, the measure of that angle is .....

A. 18°

B. 72°

C. 40°

D. 10°

Answer: B

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6. The measures of two supplementary angles differ by 20°. Then the measure of the acute angle among them is .....

A. 5°

B. 80°

C. 100°

D. 20°

Answer: B

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7. The measure of an angle is twice the measure of its supplementary angle. Then, the measure of that angle is .....

A. 60°

B. 120°

C. 50°

D. 100°

Answer: A::B

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8. If $\angle ACD$ is an exterior angle of ΔABC. If $\angle ACD = 110^\circ$ and $\angle A = 60^\circ$, then $\angle B =$ .....,

A. 50°

B. 60°

C. 70°

D. 55°

Answer:

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9. In ΔABC, $\angle A = 70^\circ$ and $\angle B = 60^\circ$. Then the measure of an exterior angle of ΔABC can be .....

A. 50°

B. 110°

C. 100°

D. 70°

Answer: A

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10. In $\Delta ABC, \angle B = 55^\circ$ and $\angle C = 65^\circ$. Then the measure of an exterior angle of $\angle A$ can be .....

A. 125°

B. 120°

C. 115°

D. 110°

Answer: B

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