



## MATHS

## BOOKS - KUMAR PRAKASHAN KENDRA MATHS (GUJRATI ENGLISH)

## LINE AND ANGLES



1. In the given figure, lines AB and CD intersect

at O. If  $\angle AOC + \angle BOE = 70^\circ$  and

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igta BOD = 40^\circ, 	ext{ find } igta BOE 	ext{ and reflex } igta COE
```



```
a : b = 2 : 3, find c.
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3. In the given figure,  $\angle PQR = \angle PRQ$ , then prove that  $\angle PQS = \angle PRT$ .



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



**5.** In the given figure, ABED is a parallelogram and DE and EC . Prove that ar (ABF)=ar(BEC)



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**6.** It is given that  $\angle XYZ = 64^{\circ}$  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  $\angle QYP$ .





## Exercise 6 2

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





**2.** In the given figure, if AB||CD, CD||EFand y: z = 3:7, find x.



## find $\angle AGR$ , $\angle GEF$ and $\angle FGE$ .



**4.** In  $\Delta PQR$ , right angled at Q (see the given figure), PQ = 3 cm and PR= 6 cm. Determine

 $\angle QPR$  and  $\angle PRQ$ .









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

## back along CD. Prove that $AB \mid CD$



## Exercise 63

1. In the given figure, sides QP and RQ of  $\Delta PQR$  are produced to points S and T respectively. If  $\angle SPR = 135^{\circ}$  and  $\angle PQT = 110^{\circ}$ , find  $\angle PRQ$ .







2. In the given figure,  $\angle X = 62^{\circ}, \angle XYZ = 54^{\circ}.$  If YO and ZO are the bisectors of  $\angle XYZ$  and  $\angle XZY$ respectively of  $\Delta XYZ$ , find  $\angle OZY$  and

## angleYOZ`.





 $\angle DCE$ .



**4.** In the given figure, if liens PQ and RS inctersect at point T, Such that





 $\angle QRT = 65^{\,\circ}$  , then find the values of x and y.



6. In the given figure, AB is a diameter of the circle, CD is chord equal to the radius of the circle, AC and BD when extended intersect at a

## point E. Prove that $\angle AEB = 60^{\circ}$ .





## Sums Of Enrich Remember S

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





2. In the given figure, ray OS stands on a lien POQ. Ray OR and ray OT are angle bisectors of  $\angle POS$  and  $\angle SOQ$  respectively. If  $\angle POS = x$ , find  $\angle ROT$ .



### 3. In the given figure, OP, OQ, OR and OS are

#### four rays. Prove that

## $\angle POQ + \angle QOR + \angle SOR + \angle POS = 360^{\circ}$









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.



# 6. In the given figure, $AB \mid \mid CD$ and $CD \mid \mid EF$ Also $EA \perp AB$ . If $\angle BEF = 55^{\circ}$ ,

find the values of x, y and z.





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



8. In the adjacent figure the sides AB and AC of  $\triangle ABC$  are produced to points E and D respectively. If bisectors BO and CO of  $\angle CBE$  and  $\angle BCD$  respectively meet at point O, then





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## **Skill Testing Exercise**





## 2. $\angle A$ and $\angle B$ are supplementary angles. If

## $\angle A : \angle B = 7 : 8$ , find $\angle A$ and $\angle B$ .





## 4. $\angle A$ and $\angle B$ are complementary angles. If $\angle A = \angle B + 20^{\circ}$ , find $\angle A$ and $\angle B$



5.  $\angle X$  and  $\angle Y$  are supplementary angles. If

```
\angle X = 5 \angle Y, find \angle X and \angle Y.
```

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## 6. $\angle P$ and $\angle Q$ are supplementary angles. If

## ${{ \angle P}={ \angle Q-40^\circ}\,}, \; { ext{find}} \, {{ \angle P}} ext{ and} \, {{ \angle Q}}$

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

 $\angle PQD, \angle CQY \text{ and } \angle APQ$ 





# 8. In the following I II m and t is their transversal. If $\angle AXY = 65^{\circ}$ , find $\angle BYF$ , $\angle XYD$ , $\angle EXC$ and $\angle YXC$ .



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

, prove that  $l \mid m$ .



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



11. Ray EX is the bisector of  $\angle DEF$  and ray EY

is the bisector of  $\angle DEX.$  If  $\angle DEX=42^{\,\circ}$  ,

find  $\angle YEF$  and  $\angle DEF$ .



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

## 14. In $\triangle ABC, \angle A : \angle B : \angle C = 3 : 4 : 5$ . Find

the measure of each angle of  $\Delta ABC$ .



 $\angle B \colon \angle C = 2 \colon 1.$ 

Find the measure of each angle of  $\Delta ABC$  and

state the type of  $\Delta ABC$ .

16. Side BC of  $\triangle ABC$  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  $\triangle ABC$ .

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17.  $\angle ACD$  is an exterior angle of  $\triangle ABC$  and he bisector of  $\angle A$  intersects BC at E. Prove that,  $\angle ABC + \angle ACD = 2 \angle AEC$ .



## 19. In $\triangle ABC$ , the bisectors of $\angle B$ and $\angle C$ intersect each other at O. Prove that.

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## 20. For the figure below, prove that

## $\angle CBE + \angle ADF = \angle DAB + \angle DCB.$





21. Prove that the sum of angles of any convex

quadrilateral is  $360^{\circ}$ .

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**Multiple Choice Questions Mcqs** 

1. The measure of the complementary angle of

an angle with measure  $40^{\circ}$  is .....

B.  $20^{\,\circ}$ 

**C.**  $140^{\circ}$ 

**D.**  $50^{\circ}$ 

Answer:

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## 2. The measure of the supplementary angle of

an angle with measure  $70^\circ\,$  is ..........

B.  $35^{\,\circ}$ 

**C.**  $70^{\circ}$ 

**D.**  $110^{\circ}$ 

Answer: A

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

### **A.** $30^{\circ}$

**B.**  $60^{\circ}$ 

**C.**  $150^{\circ}$ 

**D.**  $15^{\circ}$ 

Answer: A

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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  $\angle Q = .....$  A.  $35^{\,\circ}$ 

**B.**  $65^{\,\circ}$ 

C.  $105^{\circ}$ 

**D.**  $115^{\circ}$ 

Answer: A



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

**A.**  $18^{\circ}$ 

B.  $72^{\circ}$ 

**C.**  $40^{\circ}$ 

**D.**  $10^{\circ}$ 

Answer: B



6. The measures of two supplementary angles differ by  $20^{\circ}$ . Then the measure of the acute angle among them is ......

A.  $5^{\circ}$ 

B.  $80^{\circ}$ 

C.  $100^{\,\circ}$ 

D.  $20^{\circ}$ 

#### Answer:



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

A.  $60^{\,\circ}$ 

**B.**  $120^{\circ}$ 

**C.**  $50^{\circ}$ 

**D.**  $100^{\circ}$ 

Answer: A::B



## 8. $\angle ACD$ is an exterior angle of $\triangle ABC$ . If

 $igtriangle ACD = 110^\circ$  and  $igtriangle A = 60^\circ$ , then igtriangle B =

A.  $50^{\,\circ}$ 

**B.**  $60^{\circ}$ 

**C.**  $70^{\circ}$ 

D.  $55^{\,\circ}$ 

#### **Answer:**

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9. In  $\Delta ABC,$   $\angle A=70^{\circ}\,$  and  $\angle B=60^{\circ}.$  Then

the measure of an exterior angle of  $\Delta ABC$ 

can be .....

A.  $50^{\,\circ}$ 

## **B.** $110^{\circ}$

C.  $100^{\circ}$ 

**D.**  $70^{\circ}$ 

#### 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

 $\Delta ABC$  cannot be .....

**A.**  $125^{\,\circ}$ 

**B.**  $120^{\circ}$ 

C.  $115^{\circ}$ 

**D.**  $110^{\circ}$ 

Answer: A