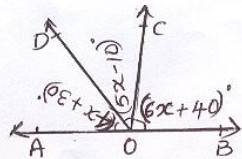


Work Sheet - Lines and Angles.

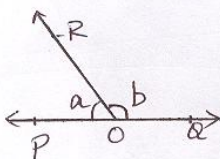
Class IX
2013-'14

1. Two supplementary angles are such that two times the measure of one is equal to three times the other. Find the measure of each angle.

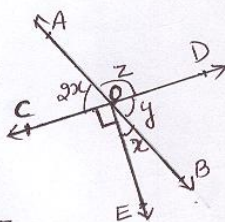
2. In the fig. if AOB is a straight line find the measure of $\angle DOC$.



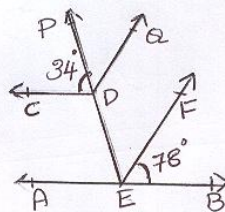
3. In the fig. LPOR and LQOR form a linear pair. If $2a = b - 30^\circ$, find the values of a & b .



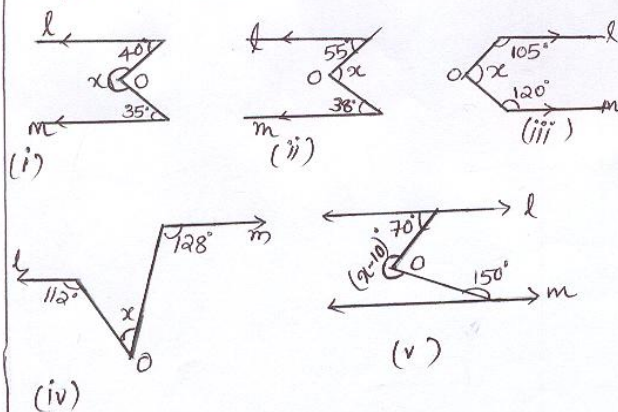
4. In the given fig. AB & CD are two straight lines intersecting at O. If $\angle COE = 90^\circ$ find the values of x , y & z .



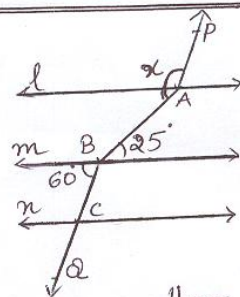
5. In the fig. $AB \parallel CD$, $EF \parallel DQ$. Find the measure of $\angle AED$, $\angle PDQ$, $\angle DEF$ and Reflex $\angle PDC$.



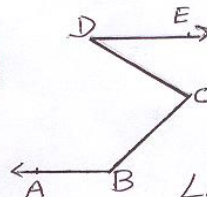
6. Find x in the following fig. where $l \parallel m$.



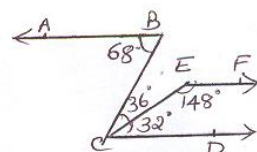
7. Given $l \parallel m \parallel n$ and $AP \parallel BQ$. Find x .



8. In the fig $BA \parallel DE$. Prove that $\angle ABC + \angle BCD = \angle CDE$.



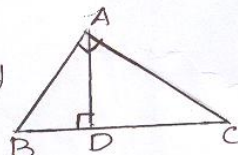
9. Prove that $AB \parallel EF$.



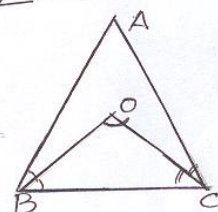
10. In $\triangle ABC$ if $2\angle A = 3\angle B = 6\angle C$ find the measure of each angle.

11. In $\triangle ABC$ if $\angle A + \angle B = 116^\circ$ and $\angle B + \angle C = 126^\circ$ find the measure of $\angle A$, $\angle B$ & $\angle C$.

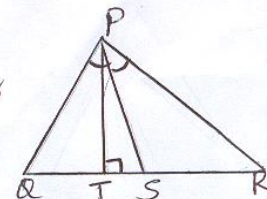
12. $\triangle ABC$ is right angled at A and $AD \perp BC$. Prove that $\angle BAD = \angle ACB$.



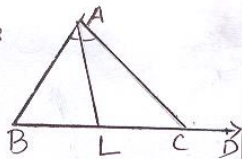
13. In the given fig. the bisectors of $\angle B$ & $\angle C$ of $\triangle ABC$ intersect each other at O. Prove that $\angle BOC = 90^\circ + \frac{1}{2}\angle A$.



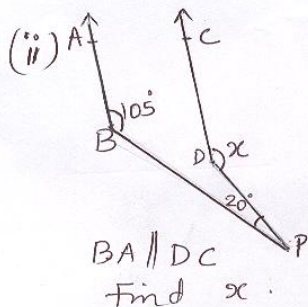
14. In the fig. PS is the bisector of $\angle QPR$ and $PT \perp QR$. Prove that $\angle TPS = \frac{1}{2}(\angle Q - \angle R)$.



- 15) The side BC of $\triangle ABC$ is produced to D. The bisector of $\angle A$ meet BC at L. Prove that $\angle ABC + \angle ACD = 2\angle ALC$.

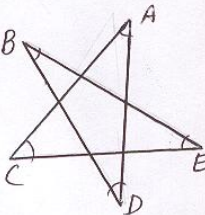


- 16) (i) Find x .



- 17) In the fig, $AB = AC$ and $BD = BC$.
P.T. $\angle ACD = 3\angle ADC$.

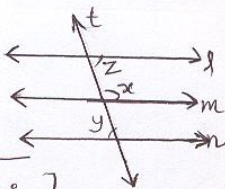
- 18) From the fig. prove that $\angle A + \angle B + \angle C + \angle D + \angle E = 180^\circ$



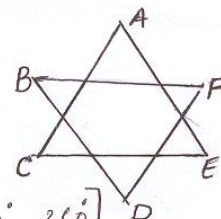
- 19) If two $\parallel$ lines are intersected by a transversal, P.T. the bisectors of the interior angles on the same side of the transversal intersect each other at 90° .

20) M.C.Q

- (i) In the fig. $l \parallel m \parallel n$. If $x:y = 5:4$ then $z =$ $40^\circ, 50^\circ, 90^\circ, 80^\circ$
- (ii) The measure of an angle which is 4 times its complement is $78^\circ, 72^\circ, 76^\circ, 74^\circ$
- (iii) If two angles of a triangle are complementary, then it is a/an $\text{acute } \triangle, \text{equilateral } \triangle, \text{isosceles } \triangle, \text{right angled } \triangle$



- iv) From the fig. $\angle A + \angle B + \angle C + \angle D + \angle E + \angle F =$ $90^\circ, 180^\circ, 270^\circ, 360^\circ$



Answers / Hints

- ① $72^\circ, 108^\circ$ ② $x=8, \angle DOC = 30^\circ$
 ③ $2a = b - 30^\circ$ & $a + b = 180^\circ$, solve; $a = 50^\circ, b = 130^\circ$
 ④ $30^\circ, 60^\circ, 120^\circ$ ⑤ $34^\circ, 68^\circ, 68^\circ, 326^\circ$
 ⑥ (i) 285° (ii) 93° (iii) 135° (iv) 60°
 ⑦ 145°
 ⑧ Draw a line through C $\parallel$ to BA & DE.
 ⑩ Let $2\angle A = 3\angle B = 6\angle C = k$.
 $\Rightarrow \angle A = k/2, \angle B = k/3, \angle C = k/6$
 apply angle sum property & solve.
 ans. $\angle A = 90^\circ, \angle B = 60^\circ, \angle C = 30^\circ$
 ⑪ $\angle A + \angle B + \angle B + \angle C = 116 + 126$
 $\Rightarrow 180 + \angle B = 242$ and solve.
 ans. $\angle A = 54^\circ, \angle B = 62^\circ, \angle C = 64^\circ$
 ⑫ Hint: $\angle B = 90 - \angle ACB$, again $\angle B = 90 - \angle BAD$ equate & simplify.
 ⑬ use angle sum property.
 ⑭ $\angle PRT = 90 - \angle RPT$ & $\angle PQT = 90 - \angle QPT$.
 Subtract the eqns & simplify.
 ⑮ $\angle ACD = \angle B + \angle A$,
 $\angle ABL = \angle ALC - \frac{1}{2}\angle A$
 add and simplify.
 ⑯ (i) 109° (ii) 125° , draw a line through P, $\parallel$ to BA & DC.
 ⑰ use ext. angle property.
 ⑱ use ext. angle property.
 ⑲ P.T. $\angle O = 90^\circ$
 ⑳ (i) 80° (ii) 72°
 (iii) right angled triangle.
 (iv) 360°