| Board – CBSE | Class – 7th | Topic – Lines and Angle |

Q.1 Find the complement of each of the following angles: 35°

Ans: The given angle measures 35°.

Let the measure of its complement be x.

x + 35° = 90°

or x = (90 - 35) ° = 55°

Hence, the complement of the given angle will be 55°.

Q.2 Find the complement of each of the following angles: 73°

Ans: The given angle measures 73°.

Let the measure of its complement be x.

x + 73º = 90°

or x = (90 - 73) ° = 17°

Hence, the complement of the given angle will be 17°.

Q.3 Find the supplement of each of the following angles: 80°

Ans: The given angle measures 80°.

Let the measure of its supplement be x.

x + 80° = 180°

or x = (180 - 80) ° = 100°

Hence, the complement of the given angle will be 100°.

Q.4 Find the supplement of each of the following angles: 105°

Ans: The given angle measures 105°.

Let the measure of its supplement be x.

x + 105° = 180°

or, x = (180 - 105) ° = 75°

Hence, the complement of the given angle will be 75°.

Q.5 Among two supplementary angles, the measure of the larger angle is 36° more than the measure of the smaller. Find their measures.

Ans: Let the two supplementary angles be x° and $(180 - x)$ °.

Since it is given that the measure of the larger angle is 36° more than the smaller angle, let the larger angle be x°.

$\therefore (180 - x)° + 36° = x°$

or $216 = 2x$

or $108 = x$

Larger angle = 108°

Smaller angle = $(108 - 36)°$

$= 72°$

Q.6 Find the angle which is equal to its supplement.

Ans: Let the measure of the required angle be x.

Since it is its own supplement:

$x + x = 180°$

or $2x = 180°$

or $x = 90°$

Therefore, the required angle is 90°.

Q.7 In the given figure, AOB is a straight line and the ray OC stands on it.

If $\angle AOC = 64°$ and $\angle BOC = x°$, find the value of x.

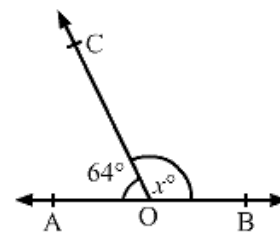**Ans:** By linear pair property:

$\angle AOC + \angle COB = 180°$

$64° + \angle COB = 180°$

$\angle COB = x° = 180° - 64° = 116°$

$\therefore x = 116$
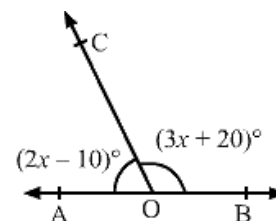

Q.8 In the given figure, AOB is a straight line and the ray OC stands on it.

If $\angle AOC = (2x - 10)°$ and $\angle BOC = (3x + 20)°$, find the value of x.

Also, find $\angle AOC$ and $\angle BOC$

Ans: By linear pair property:

$\angle AOC + \angle BOC = 180°$

or $(2x-10)° + (3x+20)° = 180°$ (given)

or $5x + 10 = 180$

or $5x = 170$

or $x = 34$

∴ ∠AOC $= (2x-10)° = (2×34-10)° = 58°$

∠BOC $= (3x+20)° = (3×34+20)° = 122°$

Q.9 In the given figure, AOB is a straight line and the rays OC and OD stands on it.

If ∠AOC $= 65°$, ∠BOD $= 70°$ and ∠COD $= x°$ find the value of x.

Ans: Since AOB is a straight line, we have:

∠AOC+ ∠BOD + ∠COD $= 180°$

or $65°+ 70° + x° = 180°$ (given)

or $135° + x° = 180°$

or $x° = 45°$

Thus, the value of x is 45
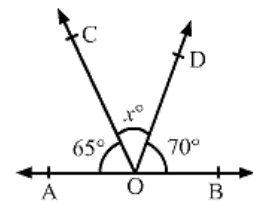
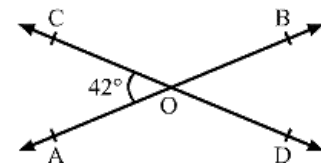**Q.10** In the given figure, two straight line AB and CD intersect at a point O.

If ∠AOC $= 42°$, find the measure of the angles: ∠AOD

Ans: AB and CD intersect at O and CD is a straight line.

∠COA+ ∠AOD $= 180°$ (linear pair)

$42°+ ∠AOD = 180°$

∠AOD $= 138°$

Q.11 In the given figure, two straight line AB and CD intersect at a point O.

If ∠AOC $= 42°$, find the measure of the angles: ∠BOD

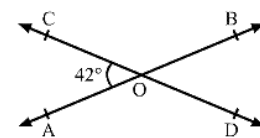**Ans:** AB and CD intersect at O and CD is a straight line.

∠COA+ ∠AOD $= 180°$ (linear pair)

$42°+ ∠AOD = 180°$

∠AOD $= 138°$ (i)

∠COA and ∠BOD are vertically opposite angles.

∴ ∠COA $= ∠BOD = 42°$ [from (i)]

Q.12 In the given figure, two straight line PQ and RS intersect at a O.

If ∠POS = 114°, find the measure of each of the angles:∠POR, ∠ROQ, ∠QOS

Ans: ∠POS +∠POR = 180° (linear pair)

or 114° + ∠POR = 180°

or ∠POR = 180° − 114° = 66°

Since ∠POS and ∠QOR are vertically opposite angles, they are equal.

∴ ∠QOR = 114°

Since ∠POR and ∠QOS are vertically opposite angles, they are equal.

∴ ∠QOS = 66°
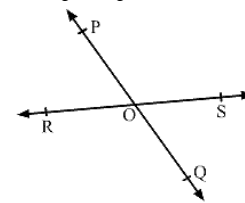
Q.13 In the given figure, rays OA, OB, OC and OD are such that ∠AOB = 56°, ∠BOC = 100°

∠COD = x° and ∠DOA = 74°. Find the value of x.

Ans: Sum of all the angles around a point is 360°.

∴ ∠AOB +∠BOC +∠ COD + ∠DOA = 360°

or 56° + 100° + x° + 74° = 360°   (given)

or 230° + x° = 360°

or x° = 130°

or x = 130
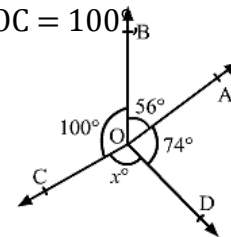
Q.14 Find the complement of each of the following angles: 60°

Ans: The given angle measures 60°.

Let the measure of its complement be x°.

x + 60° = 90°

or x = (90 - 60) ° = 30°

Hence, the complement of the given angle will be 30°.

Q.15 Find the supplement of each of the following angles: 54°

Ans: The given angle measures 54°.

Let the measure of its supplement be x.

x + 54° = 180°

or x = (180 - 54) ° = 126°

Hence, the complement of the given angle will be 126°.