Exercise 13A

Q1

Answer :

(i) 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°.

(ii) The given angle measures 47°.
Let the measure of its complement be x.

$x + 47° = 90°$
or $x = (90 - 47)° = 43°$
Hence, the complement of the given angle will be 43°.

(iii) 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°.

(iv) The given angle measures 73°.
Let the measure of its complement be x.

$x + 73^0 = 90°$
or $x = (90 - 73)° = 17°$
Hence, the complement of the given angle will be 17°.

Q2

Answer :

(i) 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°.

(ii) 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°.

(iii) 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°.

(iv)
The given angle measures 123°.
Let the measure of its supplement be x.

$x + 123° = 180°$

Q3

Answer :

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°.
∴ (180 − x)° + 36° = x°
or 216 = 2x
or 108 = x
Larger angle = 108°
Smaller angle = (108 − 36)°
= 72°

Q4

Answer :

Let the measure of the required angle be x.

Since it is its own supplement:
$\mathbf{x + x = 180^{\circ}}$
$\boldsymbol{or}\ \mathbf{2x = 180^{\circ}}$
$\boldsymbol{or}\ \boldsymbol{x = 90^{\circ}}$
Therefore, the required angle is 90°.

Q5

Answer :

(i) No. If both the angles are acute, i.e. less than 90°, they cannot be supplementary as their sum will always be less than 180°.

(ii) No. If both the angles are obtuse, i.e. more than 90°, they cannot be supplementary as their sum will always be more than 180°.

(iii) Yes. If both the angles are right, i.e. they both measure 90°, then they form a supplementary pair.
90° + 90° = 180°

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