

Exercise 13A

Q1

Answer:

(i) The given angle measures 35°.Let the measure of its complement be x.

$$x + 35^\circ = 90^\circ$$

or $x = (90 - 35)^\circ = 55^\circ$
Hence, the complement of the given angle will be 55°.

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

$$x + 47^{\circ} = 90^{\circ}$$

or $x = (90 - 47)^{\circ} = 43^{\circ}$
Hence, the complement of the given angle will be 43°.

(iii) The given angle measures 60°.Let the measure of its complement be x°.

$$x + 60^\circ = 90^\circ$$

or $x = (90 - 60)^\circ = 30^\circ$
Hence, the complement of the given angle will be 30°.

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

$$x + 73^\circ = 90^\circ$$

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

Answer:

(i) The given angle measures 80°. Let the measure of its supplement be x.

$$x + 80^{\circ} = 180^{\circ}$$

or $x = (180 - 80)^{\circ} = 100^{\circ}$

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

(ii) The given angle measures 54°.Let the measure of its supplement be x.

$$x + 54^{\circ} = 180^{\circ}$$

or $x = (180 - 54)^{\circ} = 126^{\circ}$

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

(iii) The given angle measures 105°.Let the measure of its supplement be x.

$$x + 105^{\circ} = 180^{\circ}$$

or, $x = (180 - 105)^{\circ} = 75^{\circ}$

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

(iv)

The given angle measures 123°.

Let the measure of its supplement be x.

$$x + 123^{\circ} = 180^{\circ}$$

Answer:

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Let the two supplementary angles be x° and (180 - x)°.
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Since it is given that the measure of the larger angle is 36° more than the smaller angle, let the larger angle be y°

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\therefore (180 - x)^{\circ} + 36^{\circ} = x^{\circ}
or 216 = 2x
or 108 = x
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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: $x + x = 180^{\circ}$

 $x + x = 180^{\circ}$ or $2x = 180^{\circ}$ or $x = 90^{\circ}$

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. $90^{\circ} + 90^{\circ} = 180^{\circ}$