RS Aggarwal Solutions for Class 7 Maths chapter 13
Lines and Angles

EXERCISE 13 PAGE: 172

1. Find the complement of each of the following angles:

(i). 35°

Solution:-

Two angles are said to be complementary if the sum of their measures is 90°.
The given angle is 35°
Let the measure of its complement be x°.
Then,

= x + 35 = 90
= x = 90 – 35
= x = 55°

Hence, the complement of the given angle measures 55°.

(ii). 47°

Solution:-

Two angles are said to be complementary if the sum of their measures is 90°.
The given angle is 47°
Let the measure of its complement be x°.
Then,

= x + 47 = 90
= x = 90 – 47
= x = 43°

Hence, the complement of the given angle measures 43°.

(iii). 60°

Solution:-

Two angles are said to be complementary if the sum of their measures is 90°.
The given angle is 60°
Let the measure of its complement be x°.
Then,

= x + 60 = 90
= x = 90 – 60
= x = 30°

Hence, the complement of the given angle measures 30°.

(iv). 73°

Solution:-

Two angles are said to be complementary if the sum of their measures is 90°.
The given angle is 73°
Let the measure of its complement be x°.
Then,

= x + 73 = 90
= x = 90 – 73
= x = 17°
Hence, the complement of the given angle measures 17°.

2. Find the supplement of each of the following angles:
(i). 80°
Solution:-
Two angles are said to be supplementary if the sum of their measures is 180°.
The given angle is 80°
Let the measure of its supplement be x°.
Then,
= x + 80 = 180
= x = 180 – 80
= x = 100°
Hence, the supplement of the given angle measures 100°.

(ii). 54°
Solution:-
Two angles are said to be supplementary if the sum of their measures is 180°.
The given angle is 54°
Let the measure of its supplementary be x°.
Then,
= x + 54 = 180
= x = 180 – 54
= x = 126°
Hence, the supplementary of the given angle measures 126°.

(iii). 105°
Solution:-
Two angles are said to be supplementary if the sum of their measures is 180°.
The given angle is 105°
Let the measure of its supplementary be x°.
Then,
= x + 105 = 180
= x = 180 – 105
= x = 75°
Hence, the supplementary of the given angle measures 75°.

(iv). 123°
Solution:-
Two angles are said to be supplementary if the sum of their measures is 180°.
The given angle is 123°

Let the measure of its supplementary be x^o.
Then,
$= x + 123 = 180$
$= x = 180 – 123$
$= x = 57^o$
Hence, the supplementary of the given angle measures 57^o.

3. Among two supplementary angles, the measures of the larger angle is 36^o more than the measure of the smaller. Find their measures.
Solution:-
Let us assume supplementary angles be x^o and $(180 – x)^o$
From the question,
The measures of the larger angle is 36^o more than the measure of the smaller angle, let the larger angle be x^o.
Then,
$= (180 – x) + 36 = x$
$= 216 – x = x$
$= 216 = x + x$
$= 216 = 2x$
$= x = 216/2$
$= x = 108$
Larger angle = 108^0
Smaller angle = $(108 – 36)^o$
$= 72$

4. Find the angle which is equal to its supplement.
Solution:-
Let the measure of the required angle be x^o.
Then,
$= x + x = 180^o$
$= 2x = 180^o$
$= x = 180/2$
$= x = 90^o$
Hence, the required angle measures 90^o.

5. Can two angles be supplementary if both of them are?
(i). Acute?
Solution:-
No. If two angles are acute, means less than 90^o, the two angles cannot be supplementary. Because, their sum will be always less than 90^o.

(ii). Obtuse?
Solution:-

No. If two angles are obtuse, means more than 90^o, the two angles cannot be supplementary. Because, their sum will be always more than 180^o.

(iii). Right?

Solution:-

Yes. If two angles are right, means both measures 90^o, then two angles can form a supplementary pair.

$\therefore 90^o + 90^o = 180$