1. (i) Can two right angles be complementary?
**(ii) Can two right angles be supplementary?**
(iii) Can two adjacent angles be complementary?
(iv) Can two adjacent angles be supplementary?
(v) Can two obtuse angles be adjacent?
(vi) Can an acute angle be adjacent to an obtuse angle?
(vii) Can two right angles form a linear pair?
Solution:
(i) No, as the sum of two complementary angles is 90°.
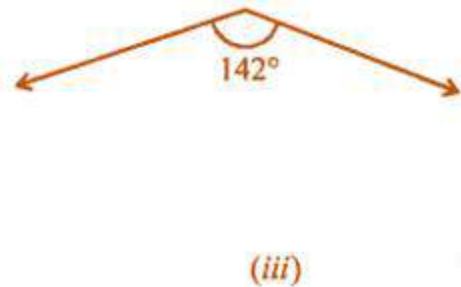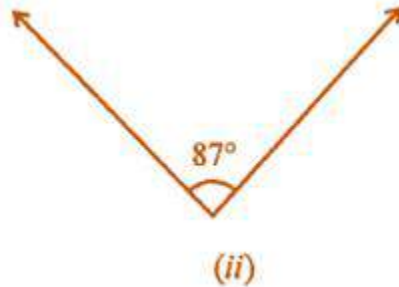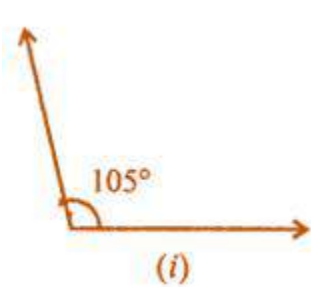(ii) Yes
(iii) Yes
(iv) Yes
(v) Yes
(vi) Yes
(vii) Yes

2. Find the complement of each of the following angles:
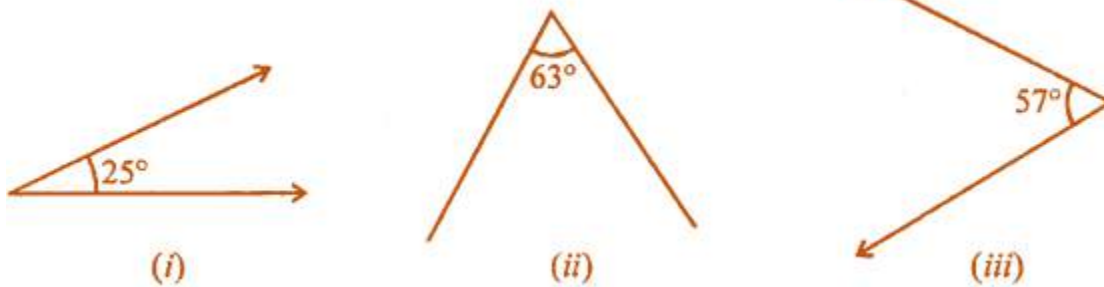
Solution:
(i) Complement of 25° is 90° – 25° = 65°.

(ii) Complement of 63° is 90° – 63° = 27°.

(iii) Complement of 57° is 90° – 57° = 33°.

3. Find the supplement of each of the following angles:

(i)   (ii)   (iii)

Solution:
(i) Supplement of 105° is $180^o - 105^o = 75^o$.

(ii) Supplement of 87° is $180^o - 87^o = 93^o$.

(iii) Supplement of 142° is $180^o - 142^o = 38^o$.

4. Identify which of the following pairs of angles are complementary and which are supplementary:
(i) 55°, 125°
(ii) 34°, 56°
(iii) 137°, 43°
(iv) 112°, 68°
(v) 45°, 45°
(vi) 72°, 18°
Solution:
(i) 55°, 125° are supplementary angles.

(ii) 34°, 56° are complementary angles.

(iii) 137°, 43° are supplementary angles.

(iv) 112°, 68° are supplementary angles.

(v) 45°, 45° are complementary angles.

(vi) 72°, 18° are complementary angles.

5. (i) Find the angle which is equal to its complement.
(ii) Find the angle which is equal to its supplement.
Solution:

(i) The angle which is equal to its complement is
90/2 = 45°.
So, 45° is complement to 45°.

(ii) The angle which is equal to its supplement is
180/2 = 90°.
So, 90° is supplement to 90°.

6. Two complementary angles are (x + 4)° and (2x – 7)°, find the value of x.
Solution:
Given:
Two complementary angles are (x + 4)° and (2x – 7)°
x + 4 + 2x – 7 = 90°
3x – 3 = 90°
3x = 90 + 3
3x = 93
x = 93/3
x = 31°
∴ Value of x is 31°.

7. Two supplementary angles are in the ratio of 2: 7, find the angles.
Solution:
Given:
Two supplementary angles are in the ratio of 2: 7
We know the sum of the angles is 180°.
So, first angle = [180°/(2+7)] × 2
                = (180/9) × 2
                = 40°

Second angle = [180°/(2+7)] × 7
             = (180/9) × 7
             = 140°
∴ The angles are 40° and 140°.