

NCERT SOLUTIONS FOR CLASS 7 MATHEMATICS | CHAPTER 5 | LINES AND ANGLES

Exercise 5.1

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

i) 20°

ii) 63°

iii) 57°

Answer:

i) 70°

ii) 27°

iii) 33°

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

i) 105°

ii) 87°

iii) 154°

Answer:

i) 75°

ii) 93°

iii) 26°

3. Identify which of the following pairs of angles are complementary and which are supplementary.

i) $65^\circ, 115^\circ$

ii) $63^\circ, 27^\circ$

iii) $112^\circ, 68^\circ$

iv) $130^\circ, 50^\circ$

v) $45^\circ, 45^\circ$

vi) $80^\circ, 10^\circ$

Answer:

i) Supplementary

ii) Complementary

iii) Supplementary

iv) Supplementary

v) Complementary

vi) Complementary

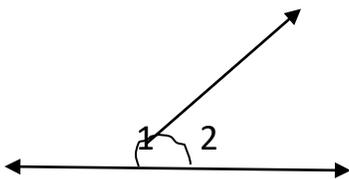
4. Find the angle which is equal to its complement.

Answer: 45°

5. Find the angle which is equal to its supplement.

Answer: 90°

6. In the given figure, angle 1 and angle 2 are supplementary angles. If angle 1 is decreased, what changes should take place in angle 2 so that both the angles still remain supplementary.



Answer:

Angle 2 will increase with the same measure as the decrease in angle 1.

7. Can two angles be supplementary if both of them are:

- i) acute?
- ii) obtuse?
- iii) right?

Answer:

- i) No
- ii) No
- iii) Yes

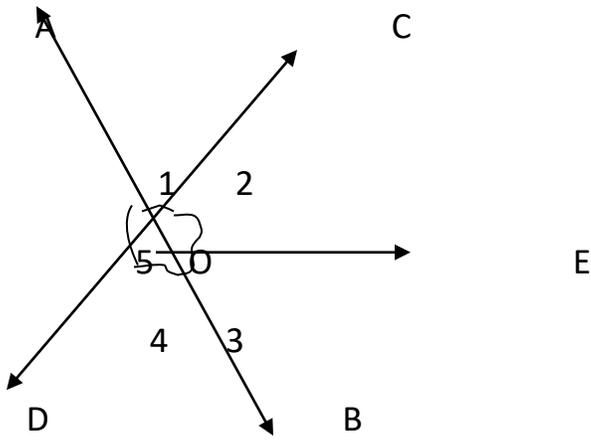
8. An angle is greater than 45° . Is its complementary angle greater than 45° or equal to 45° or less than 45° ?

Answer:

If an angle is greater than 45° , its complementary angle must be less than 45° .

9. In the adjoining figure:

- i) Is $\angle 1$ adjacent to $\angle 2$?**
- ii) Is $\angle AOC$ adjacent to $\angle AOE$?**
- iii) Do $\angle COE$ and $\angle EOD$ form a linear pair?**
- iv) Are $\angle BOD$ and $\angle DOA$ supplementary?**
- v) Is $\angle 1$ vertically opposite to $\angle 4$?**
- vi) What is the vertically opposite angle of $\angle 5$?**

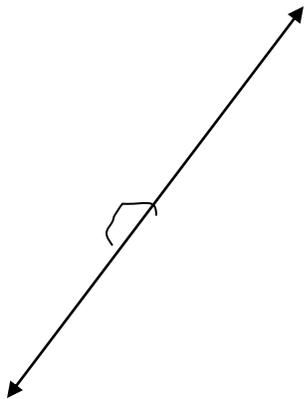


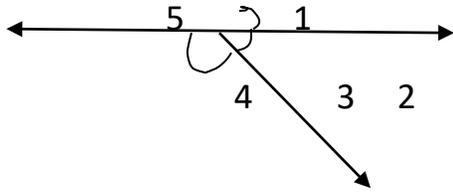
Answer:

- i) Yes
- ii) No
- iii) Yes
- iv) Yes
- v) Yes
- vi) $\angle COB$.

10. Indicate which pairs of angles are:

- i) Vertically opposite angles.**
- ii) Linear pairs.**





Answer:

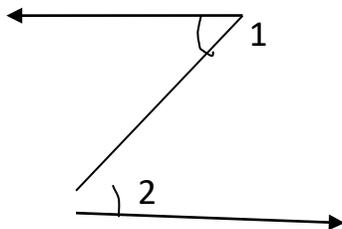
i) $\angle 1$ & $\angle 4$

$\angle 5$ & $\angle 2 + \angle 3$.

ii) $\angle 1, \angle 5$

$\angle 4, \angle 5$.

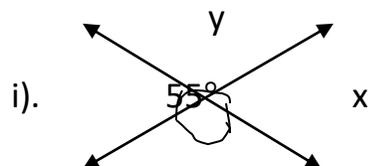
11. In the following figure, is $\angle 1$ adjacent to $\angle 2$? Give reasons.



Answer:

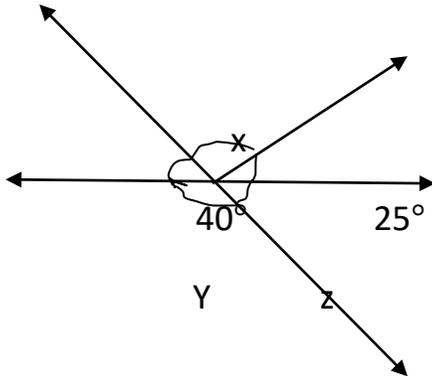
$\angle 1$ and $\angle 2$ are not adjacent angles because their vertex is not common.

12. Find the values of the angles x , y and z in each of the following:



z

ii)



Answer:

i) Here $x = 55^\circ$ (vertically opposite angles)

$y = 180^\circ - 55^\circ = 125^\circ$ (Linear pair)

$z = 125^\circ$ (vertically opposite angles)

ii) $z = 40^\circ$ (vertically opposite angles)

$y = 180^\circ - 40^\circ = 140^\circ$ (Linear pair)

$x = 180^\circ - (40^\circ + 25^\circ)$ (Linear pair)

$= 180^\circ - 65^\circ = 110^\circ$.

13. Fill in the blanks:

i) If two angles are complementary, then the sum of their measures is -----

ii) If two angles are supplementary, then the sum of their measures is -----

iii) Two angles forming a linear pair are-----

iv) If two adjacent angles are supplementary, they form a -----

v) If two lines intersect at a point, then the vertically opposite angles are always --

vi) If two lines intersect at a point, and if one pair of vertically opposite angles are acute angles, then the other pair of vertically opposite angles are -----

Answer:

i) 90°

ii) 180°

iii) supplementary

iv) linear pair

v) equal

vi) obtuse angles.

14. In the adjoining figure, name the following pairs of angles.

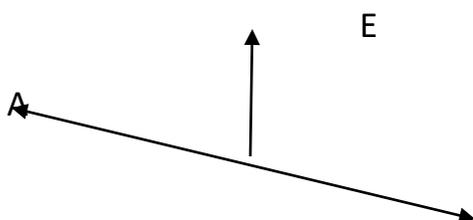
i) Obtuse vertically opposite angles

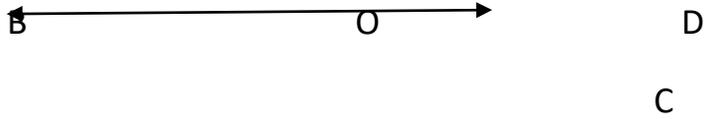
ii) Adjacent complementary angles

iii) Equal supplementary angles

iv) Unequal supplementary angles

v) Adjacent angles that do not form a linear pair.





Answer:

i) $\angle AOD, \angle BOC$

ii) $\angle EOA, \angle AOB$

iii) $\angle EOB, \angle EOD$

iv) $\angle EOA, \angle EOC$

v) $\angle AOB, \angle AOE; \angle AOE, \angle EOD; \angle EOD, \angle COD$
