Access RD Sharma Solutions for Class 6 Chapter 11: Angles

Exercise 11.1 page: 11.5

1. Give three examples of angles from your environment.

Solution:

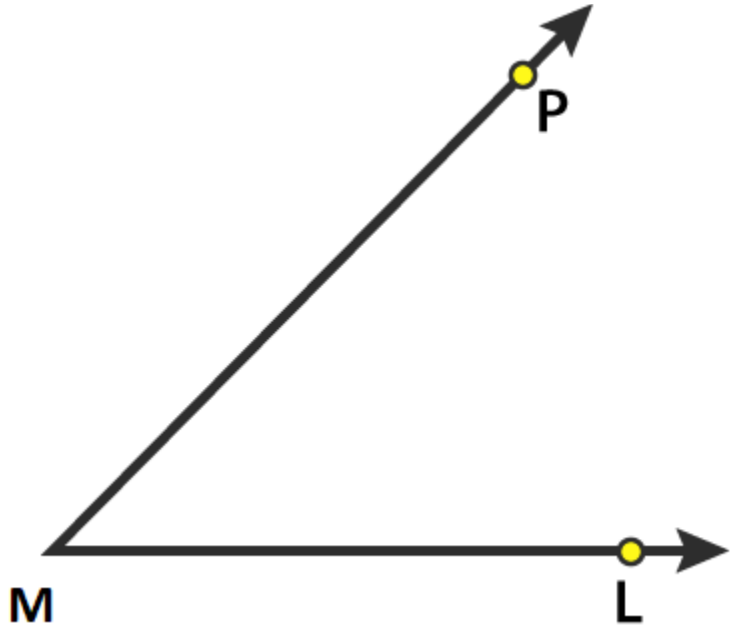
The three examples of angles are

The angle formed by the adjacent fingers of our hand

The angle formed by walls of a room

The angle formed by the hour hand and minute hand of a clock.

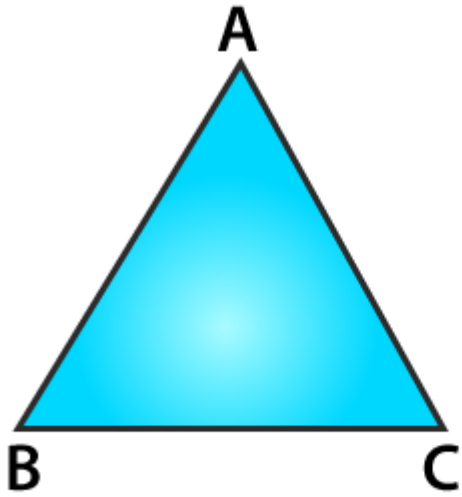
2. Write the arms and the vertex of ∠ LMP given in Fig. 11.14.



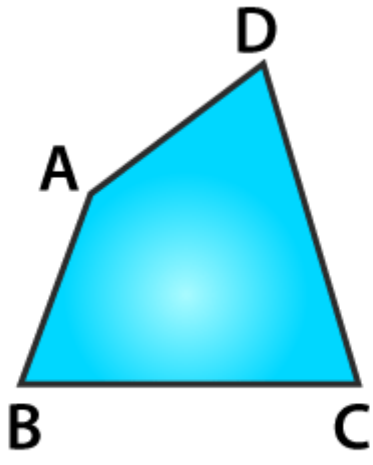
Solution:

The vertex of ∠ LMP is M and the arms are ML and MP.

3. How many angles are formed in the figures 11.15 (i), (ii) and (iii)? Name them.



(i)



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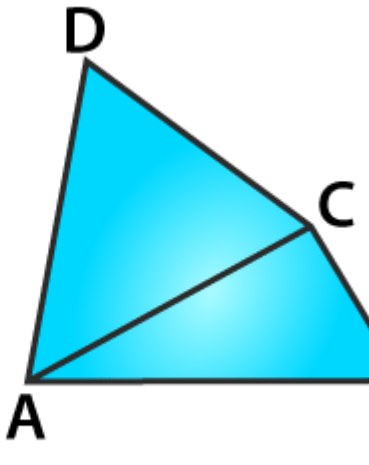


(iii)

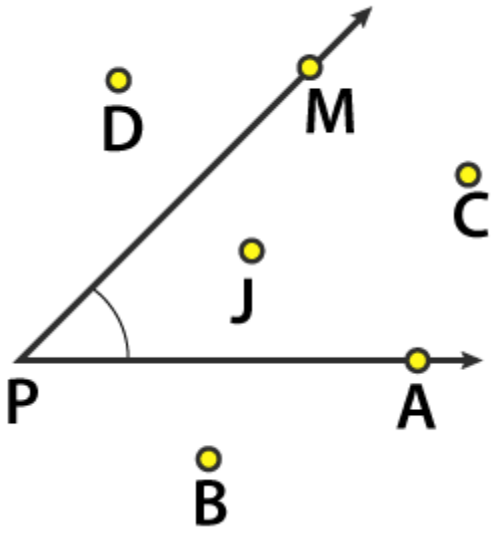
Solution:

(i) Three angles are formed in figure (i) namely ∠ ABC, ∠ ACB and ∠ BAC.

(ii) Four angles are formed in figure (ii) namely ∠ ABC, ∠ BCD, ∠ CDA and ∠ DAB.

(iii) Eight angles are formed in figure (iii) namely ∠ ABC, ∠ BCD, ∠ CDA, ∠ DAB, ∠ CAB, ∠ CAD, ∠ BCA and ∠ ACD.

4. In Fig. 11.16, list the points which are: (i) in the interior of ∠ P (ii) in the exterior of ∠ P and (iii) lie on ∠ P.



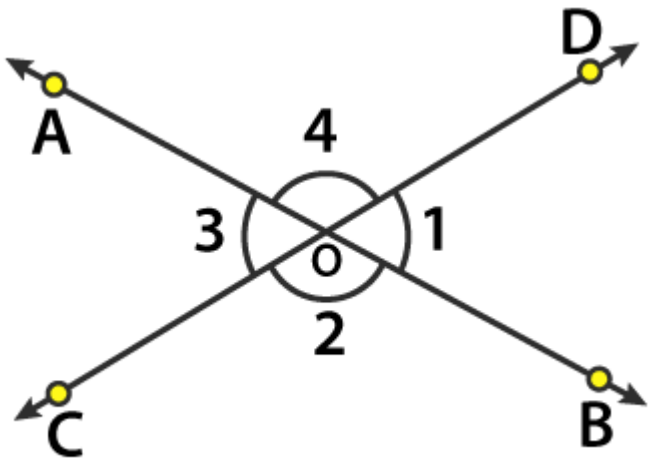
Solution:

(i) The points which are in the interior of ∠ P are J and C.

(ii) The points which are in the exterior of ∠ P are B and D.

(iii) The points which lie on ∠ P are A, P and M.

5. In Fig. 11.17, write another name for:



(i) ∠ 1

(ii) ∠ 2

(iii) ∠ 3

(iv) ∠ 4

Solution:

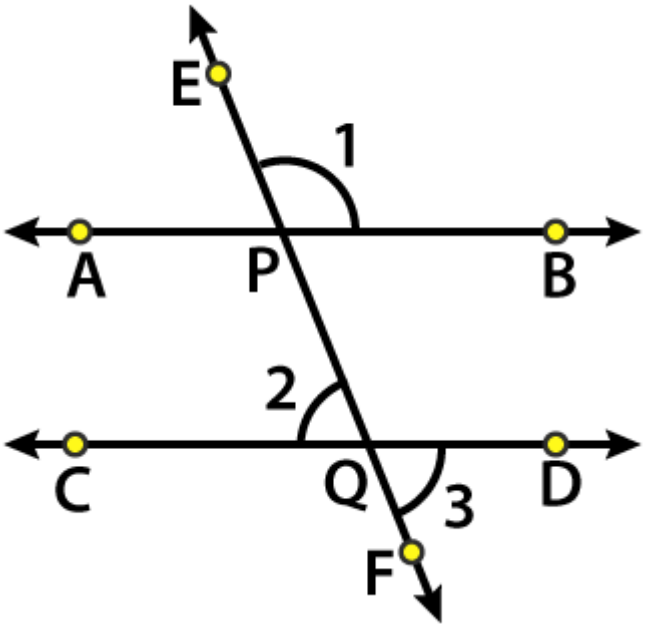
(i) From the figure, another name for ∠ 1 is ∠ BOD or ∠ DOB.

(ii) From the figure, another name for ∠ 2 is ∠ BOC or ∠ COB.

(iii) From the figure, another name for ∠ 3 is ∠ COA or ∠ AOC.

(iv) From the figure, another name for ∠ 4 is ∠ AOD or ∠ DOA.

6. In Fig. 11.18, write another name for:



(i) ∠ 1

(ii) ∠ 2

(iii) ∠ 3

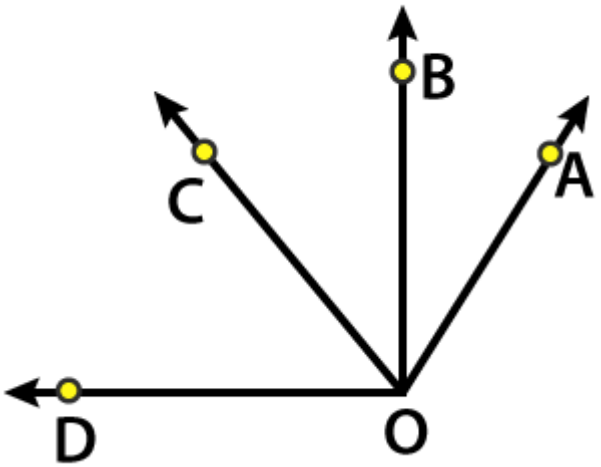
Solution:

(i) From the figure, another name for ∠ 1 is ∠ EPB or ∠ BPE.

(ii) From the figure, another name for ∠ 2 is ∠ CQP or ∠ PQC.

(iii) From the figure, another name for ∠ 3 is ∠ DQF or ∠ FQD.

7. In Fig. 11.19, which of the following statements are true:



(i) Point B is the interior of ∠ AOB.

(ii) Point B is the interior of ∠ AOC.

(iii) Point A is the interior of ∠ AOD.

(iv) Point C is the interior of ∠ AOB.

(v) Point D is the exterior of ∠ AOC.

Solution:

(i) False. B lies on ∠ AOB.

(ii) True

(iii) False. A lies on ∠ AOD.

(iv) True

(v) True

8. Which of the following statements are true:

(i) The vertex of an angle lies in its interior.

(ii) The vertex of an angle lies in its exterior.

(iii) The vertex of an angle lies on it.

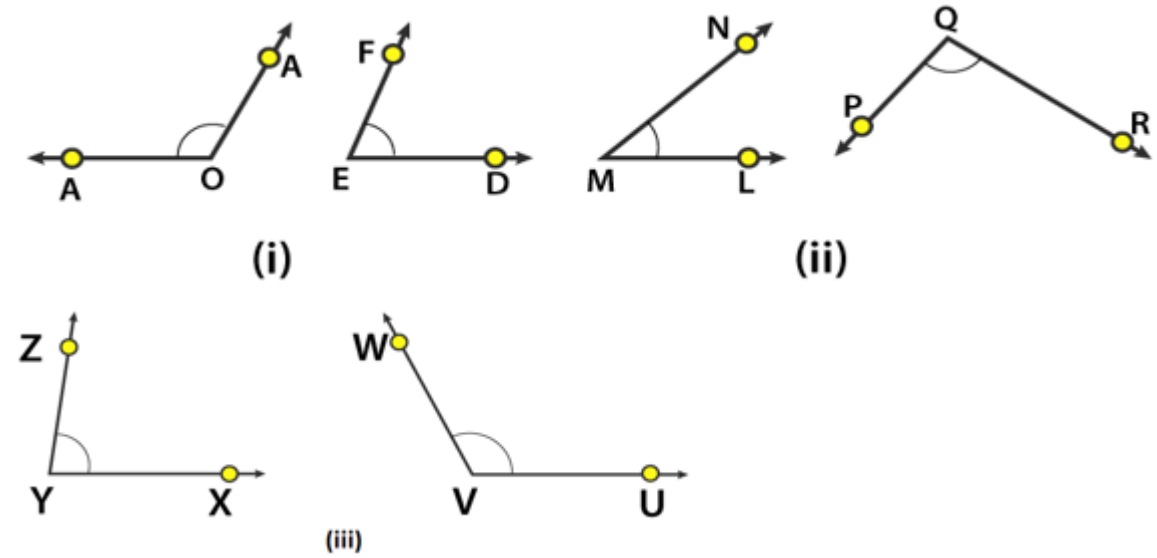
Solution:

(i) False.

(ii) False.

(iii) True.

9. By simply looking at the pair of angles given in Fig. 11.20, state which of the angles in each of the pairs is greater:



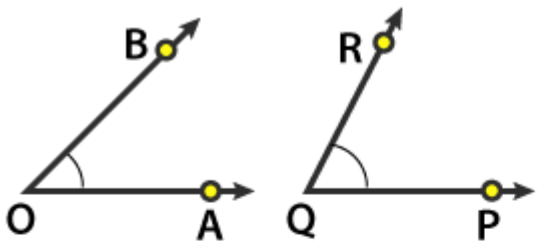
Solution:

(i) From the figure we know that ∠ AOB > ∠ DEF.

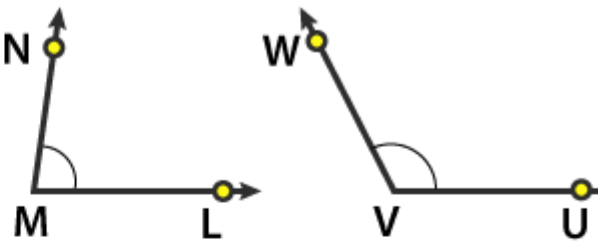
(ii) From the figure we know that ∠ PQR > ∠ LMN.

(iii) From the figure we know that ∠ UVW > ∠ XYZ.

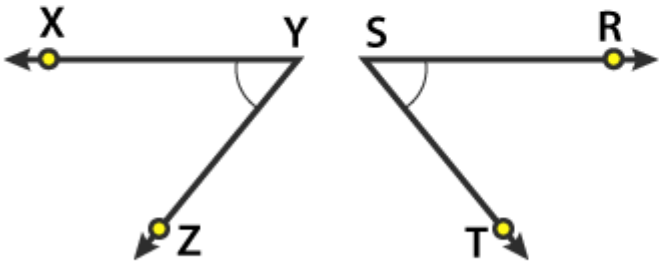
10. By using tracing paper compare the angles in each of the pairs given in Fig. 11.21.



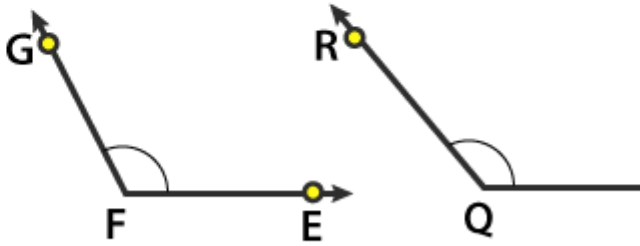
(i)



(ii)



(iii)



(iv)

Solution:

(i) From the figure we know that ∠ PQR > ∠ AOB.

(ii) From the figure we know that ∠ UVW > ∠ LMN.

(iii) From the figure we know that ∠ RST > ∠ XYZ.

(iv) From the figure we know that ∠ PQR > ∠ EFG.

Exercise 11.2 page: 11.10

1. Give two examples each of right, acute and obtuse angles from your environment.

Solution:

The two examples of right angle are:

Two adjacent walls of a room and adjacent edges of a book

The two examples of acute angle are:

Two adjacent sides of the letter Z and two adjacent fingers of our hand.

The two examples of obtuse angles are:

Two sloping sides of a roof and two adjacent blades of a fan.

2. An angle is formed by two adjacent fingers. What kind of angle will it appear?

Solution:

The angle formed by two adjacent fingers will appear as acute angle.

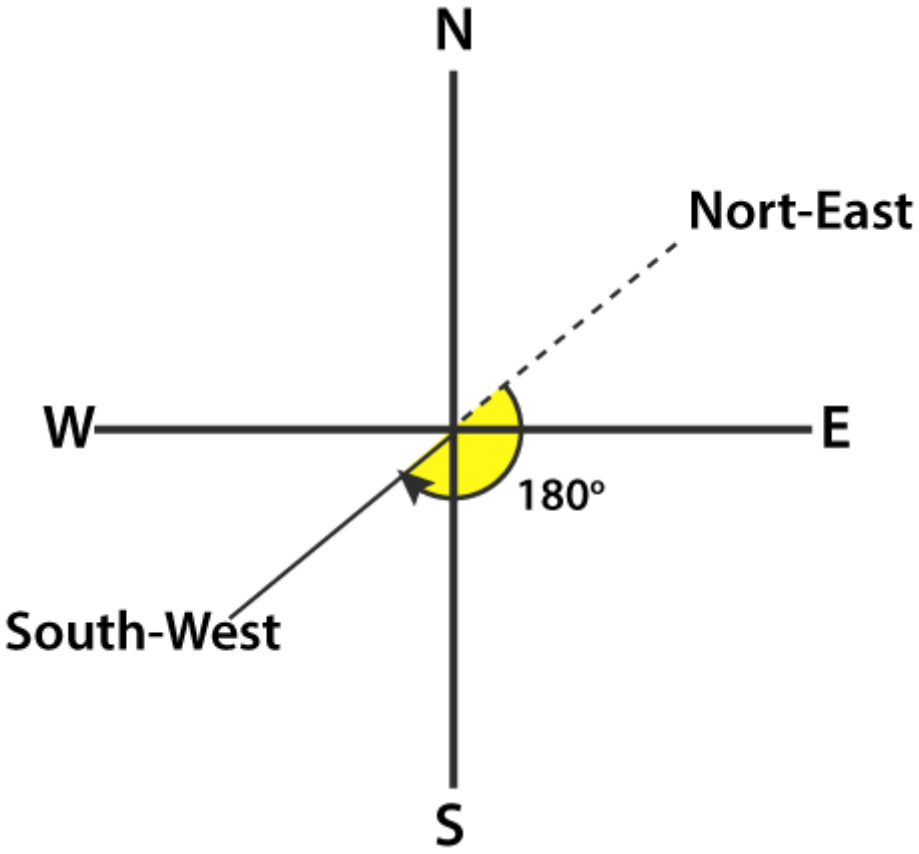
3. Shikha is rowing a boat due north-east. In which direction will she be rowing if she turns it through:

(i) a straight angle

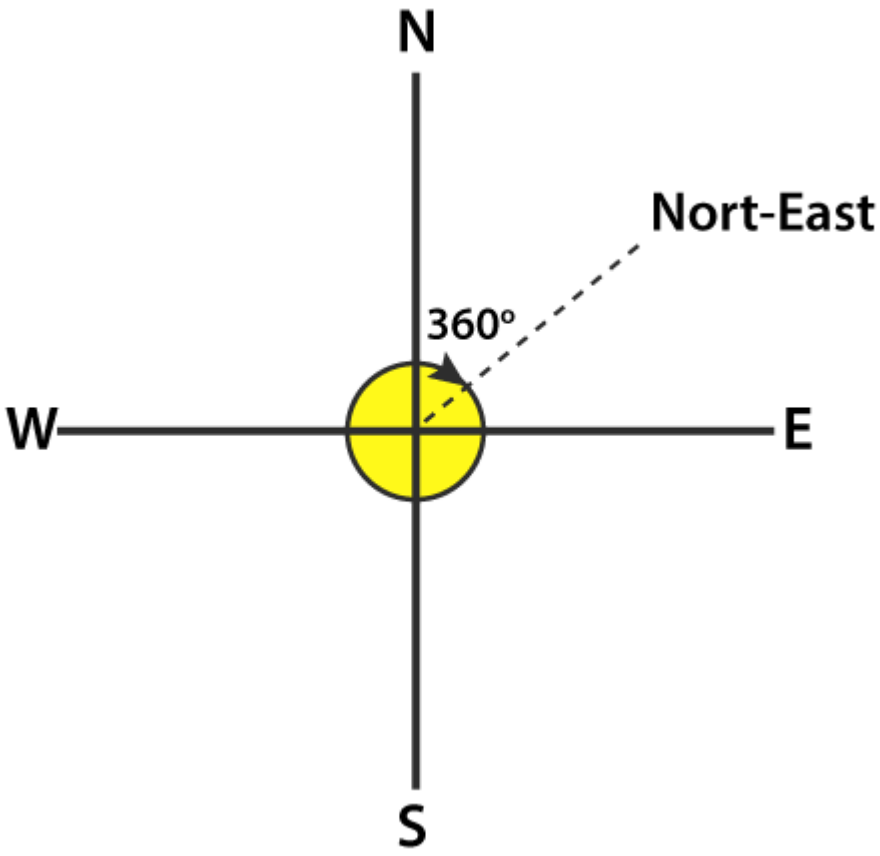
(ii) a complete angle.

Solution:

(i) If she turns through a straight angle (180°) she will be rowing in the South-West direction.



(ii) If she turns through a complete angle (360°) she will be rowing in North-East direction.



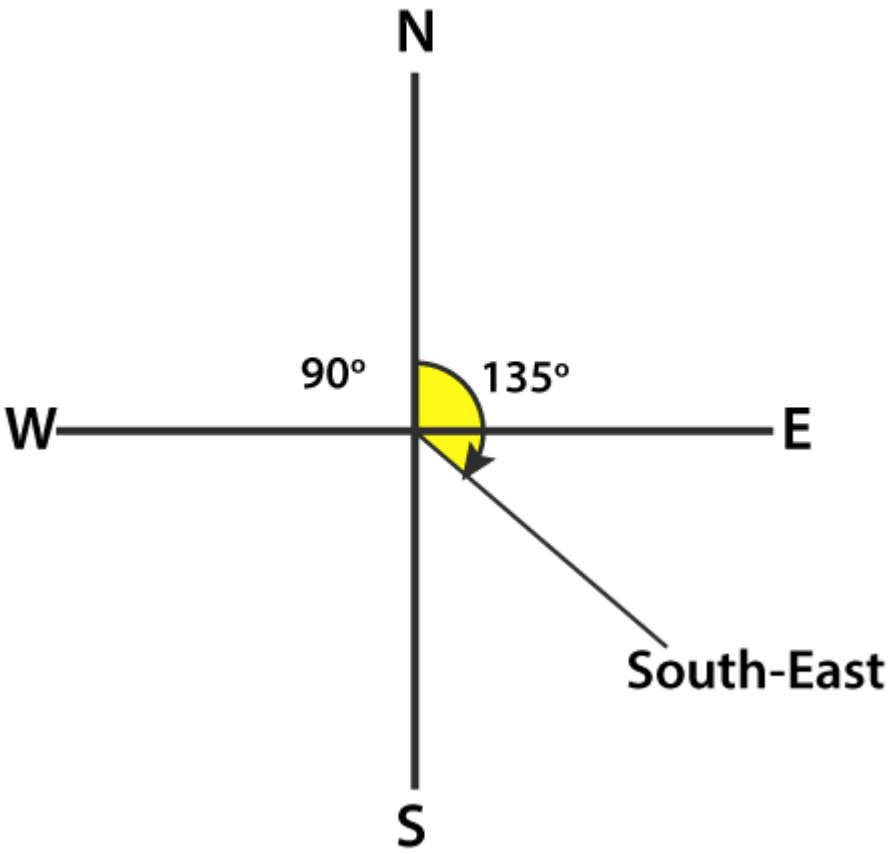
4. What is the measure of the angle in degrees between:

(i) North and West?

(ii) North and South?

(iii) North and South- East?

Solution:



The measure of the angle in degrees between:

(i) North and West is 90°.

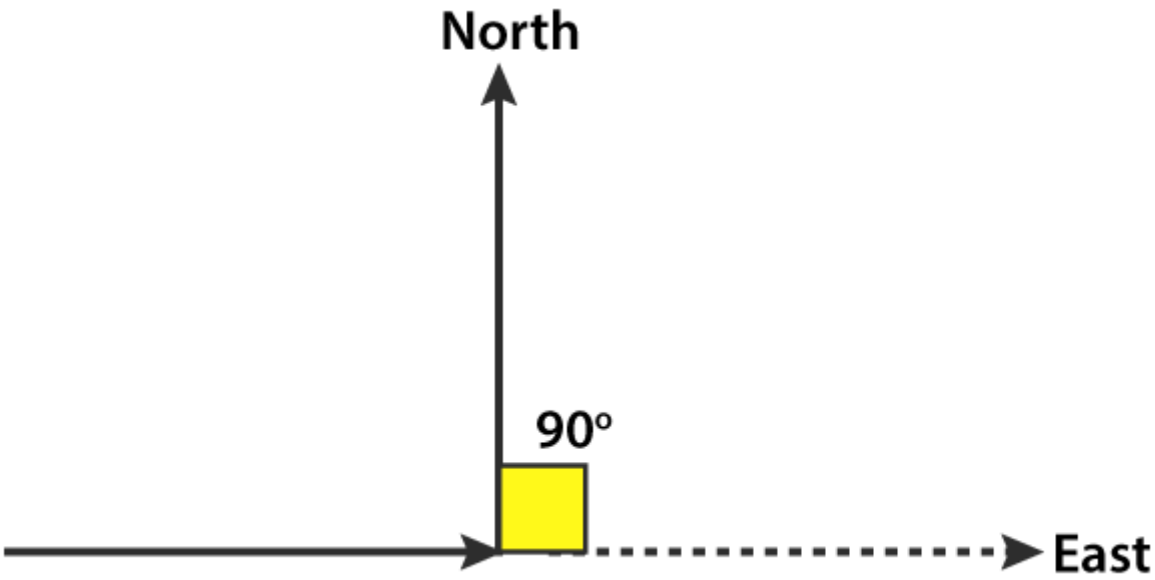
(ii) North and South is 180°.

(iii) North and South-East is 135°.

5. A ship sailing in river Jhelam moves towards east. If it changes to north, through what angle does it turn?

Solution:

It the ship moves from east to north direction, the angle it turns is 90°.



6. You are standing in a class-room facing north. In what direction are you facing after making a quarter turn?

Solution:

By making a quarter turn (90°), I will be facing towards east to my right hand and if I turn to my left hand, I will be facing towards west.

7. A bicycle wheel makes four and a half turns. Find the number of right angles through which it turns.

Solution:

We know that the wheel of a bicycle covers 360° in one turn.

It can be written as

360/90 = 4 right angles

We know that in four and half turns the wheel turns by 4 (4.5) = 18 right angles

Hence, the number of right angles through which it turns is 18.

8. Look at your watch face. Through how many right angles does the minute-hand moves between 8: 00 O' clock and 10: 30 O' clock?

Solution:

We know that the time interval between 8: 00 O' clock and 10: 30 O' clock is two and half hours

The minute hand turns 360° in 1 hour

360/90 = 4 right angles

So in two and half hours the minute hand turns by 2.5 (4) = 10 right angles.

Hence, the minute hand turns by 10 right angles.

9. If a bicycle wheel has 48 spokes, then find the angle between a pair of adjacent spokes.

Solution:

The central angle in a bicycle is 360° which consists 48 spokes.

So the angle between a pair of adjacent spokes = $360/48 = 7.5^\circ$

Hence, the angle between a pair of adjacent spokes is 7.5°.

10. Classify the following angles as acute, obtuse, straight, right, zero and complete angle:

(i) 118°

(ii) 29°

(iii) 145°

(iv) 165°

(v) 0°

(vi) 75°

(vii) 180°

(viii) 89.5°

(ix) 30°

(x) 90°

(xi) 179°

(xii) 360°

(xiii) $90\frac{1}{2}^\circ$

Solution:

(i) 118° is an obtuse angle.

(ii) 29° is an acute angle.

(iii) 145° is an obtuse angle.

(iv) 165° is an obtuse angle.

(v) 0° is a zero angle.

(vi) 75° is an acute angle.

(vii) 180° is a straight angle.

(viii) 89.5° is an acute angle.

(ix) 30° is an acute angle.

(x) 90° is a right angle.

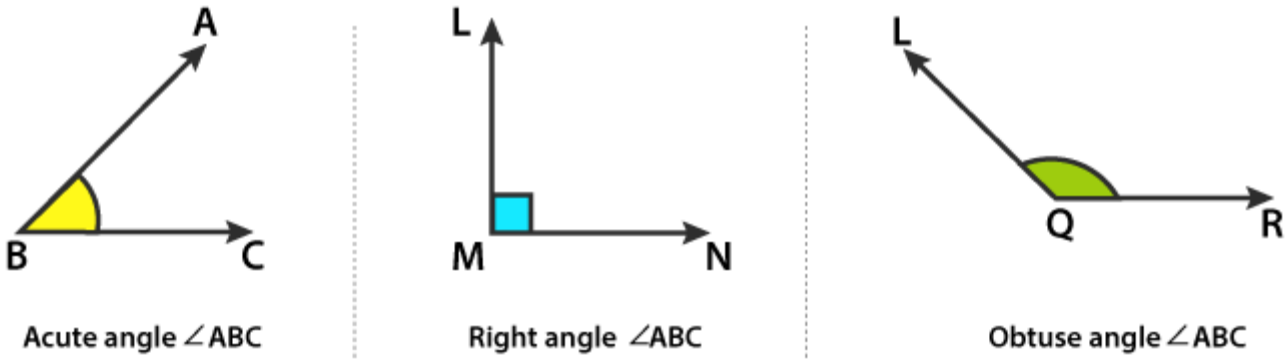
(xi) 179° is an obtuse angle.

(xii) 360° is a complete angle.

(xiii) 90 ½ ° is an obtuse angle.

11. Using only a ruler, draw an acute angle, a right angle and an obtuse angle in your notebook and name them.

Solution:



12. State the kind of angle, in each case, formed between the following directions:

(i) East and West

(ii) East and North

(iii) North and North-East

(iv) North and South-East

Solution:

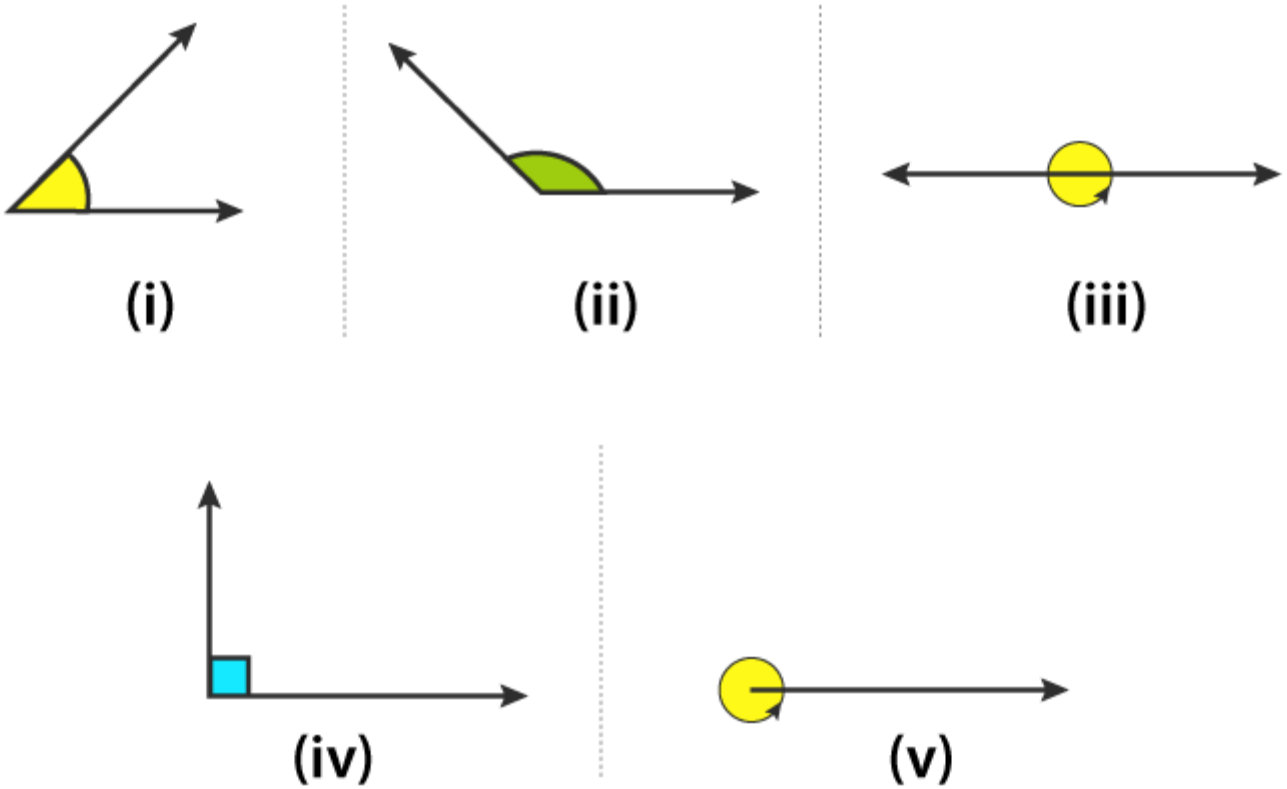
(i) East and West directions form a straight angle (180°).

(ii) East and North directions form a right angle (90°).

(iii) North and North-East directions form an acute angle (45°).

(iv) North and South-East directions form an obtuse angle (135°).

13. State the kind of each of the following angles:



Solution:

(i) Acute angle which measures 0° and 90°.

(ii) Obtuse angle which measures 90° and 180°.

(iii) Straight angle which measures 180°.

(iv) Right angle which measures 90°.

(v) Complete angle which measures 360°.

Objective Type Questions page: 11.11

Mark the correct alternative in each of the following:

1. The vertex of an angles lies
(a) in its interior
(b) in its exterior
(c) on the angle
(d) inside the angle

Solution:

The option (c) is the correct answer.

The vertex of an angles lies on the angle.

2. The figure formed by two rays with the same initial point is known as
(a) a ray
(b) a line
(c) an angle
(d) a line segment

Solution:

The option (c) is the correct answer.

The figure formed by two rays with the same initial point is known as an angle.

3. An angle of measure 0° is called
(a) a complete angle
(b) a right angle
(c) a straight angle
(d) None of these

Solution:

The option (d) is the correct answer.

An angle of measure 0° is called a zero angle.

4. An angle of measure 90° is called
(a) a complete angle
(b) a right angle
(c) a straight angle
(d) a reflex angle

Solution:

The option (b) is the correct answer.

An angle of measure 90° is called a right angle.

5. An angle of measure 180° is called
(a) a zero angle
(b) a right angle
(c) a straight angle
(d) a reflex angle

Solution:

The option (c) is the correct answer.

An angle of measure 180° is called a straight angle.

6. An angle of measure 360° is called
(a) a zero angle
(b) a straight angle
(c) a reflex angle
(d) a complete angle

Solution:

The option (d) is the correct answer.

An angle of measure 360° is called a complete angle.

7. An angle of measure 240° is
(a) an acute angle
(b) an obtuse angle
(c) a straight angle
(d) a complete angle

Solution:

There is no correct answer.

An angle of measure 240° is called a reflex angle.

8. A reflex angle measures
(a) more than 90° but less than 180°
(b) more than 180° but less than 270°
(c) more than 180° but less than 360°
(d) None of these

Solution:

The option (c) is the correct answer.

A reflex angle measures more than 180° but less than 360°.

9. The number of degrees in 2 right angle is
(a) 90°
(b) 180°

(c) 270°
(d) 360°

Solution:

The option (b) is the correct answer.

The number of degrees in 2 right angle is 180°.

10. The number of degrees in 3/2 right angles is
(a) 180°
(b) 360°
(c) 270°
(d) 90°

Solution:

There is no correct answer.

One right angle = 90°

So 3/2 right angles = 3/2 (90°) = 135°

11. If a bicycle wheel has 36 spokes, then the angle between a pair of adjacent spokes is
(a) 10°
(b) 15°
(c) 20°
(d) 12°

Solution:

The option (a) is the correct answer.

The central angle of a bicycle wheel measures 360°

The angle between a pair of adjacent spokes of the wheel which has 36 spokes = 360/ 36 = 10°