

KUMAR ONLINE CLASS

CBSE(NCERT): CLASS X MATHS

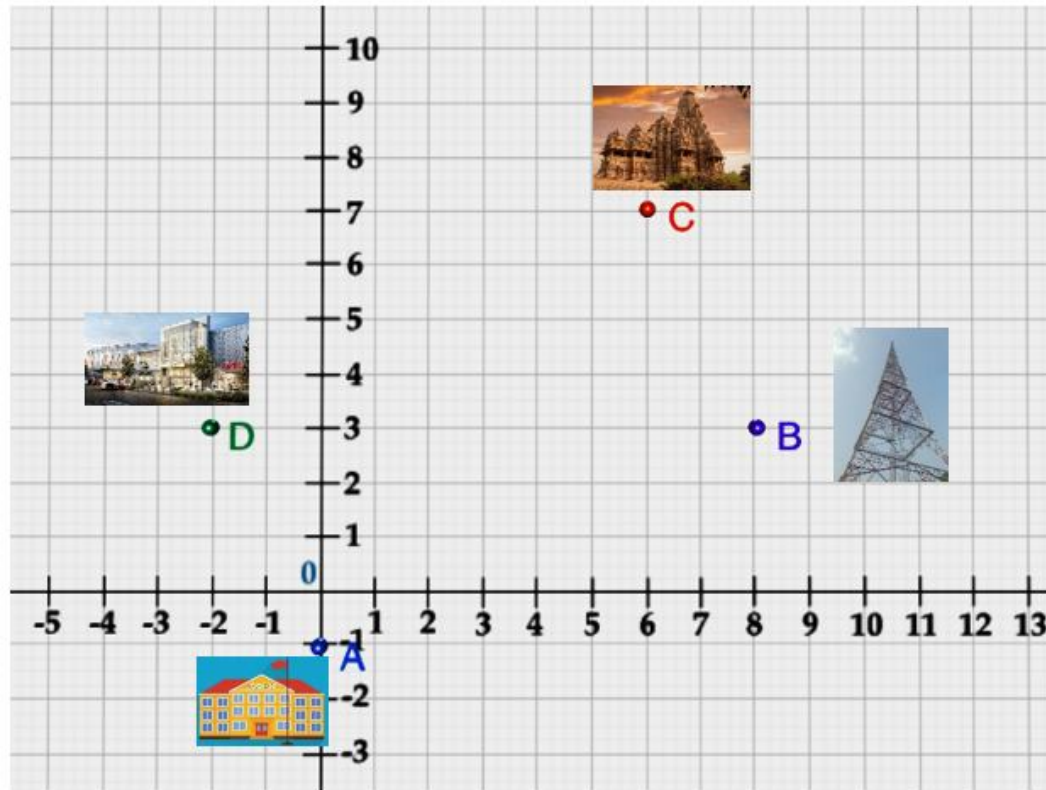
CASE STUDY QUESTION 35



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CASE STUDY QUESTION 35

One day Ram went to his home town during Dussehra vacation. During his excursion, he noted the four places Temple, TV tower, Mall and School, then he tried to locate all the places using graph sheet by taking his position at origin. He marked A, B, C and D for School, TV Tower, Temple and Mall respectively on the graph sheet by taking scale as 1 unit = 1 km as shown below.



(i) Find the coordinates of C.

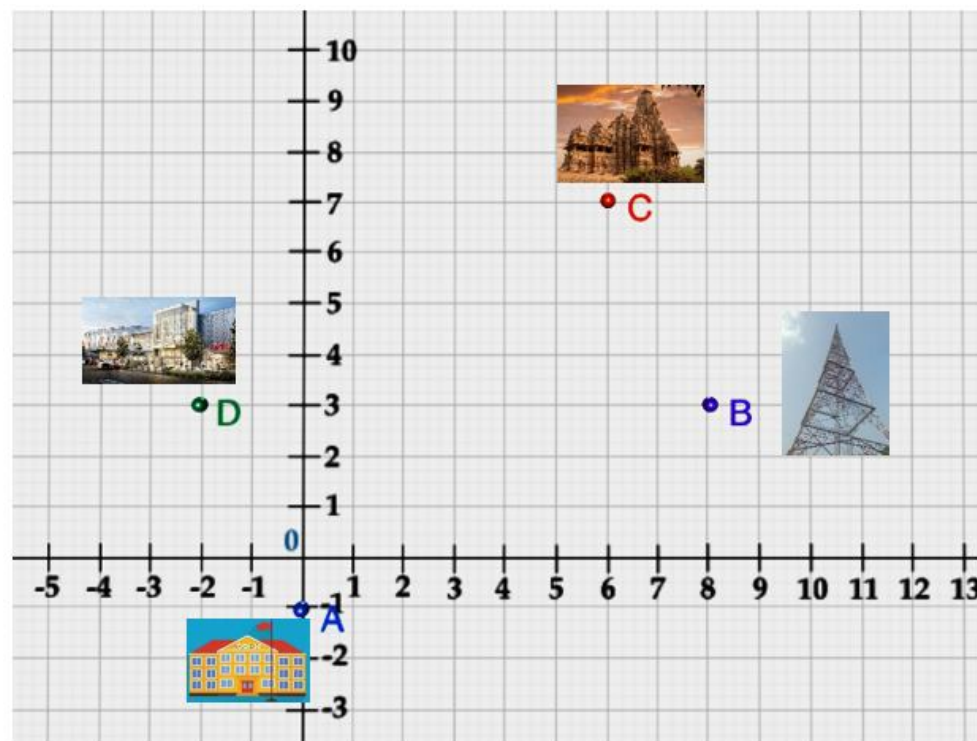
- (a) (0, -1) (b) (8, 3)
(c) (6, 7) (d) (-2, 3)

Ans: (c) (6, 7)

(ii) Find the distance between School and TV Tower.

- (a) 4 km (b) $4\sqrt{5}$ km
(c) $2\sqrt{5}$ km (d) $3\sqrt{5}$ km

$$\begin{aligned} AB &= \sqrt{(8-0)^2 + (3+1)^2} \\ &= \sqrt{64+16} = \sqrt{80} = 4\sqrt{5} \end{aligned}$$



(iii) Find the distance between TV tower and Mall.

- (a) 8 km (b) 10 km
(c) 6 km (d) 9 km

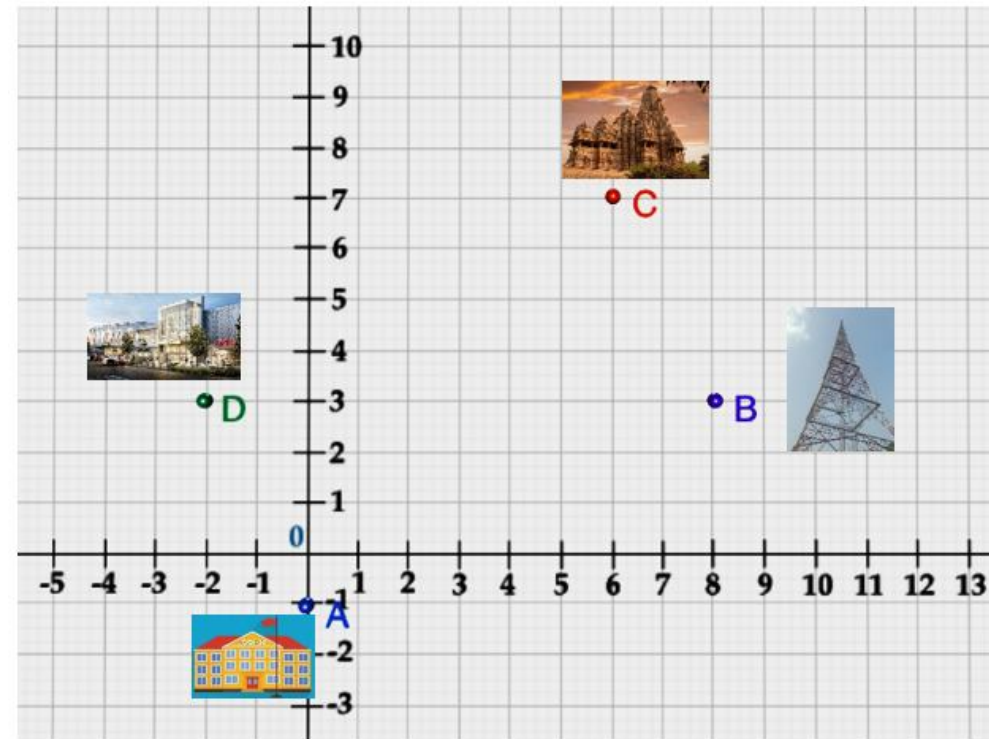
$$BD = 10 \text{ km}$$

Ans: (b) 10 km

(iv) Find the distance between School and Temple.

- (a) 8 km (b) 10 km
(c) 6 km (d) 9 km

$$\begin{aligned} AC &= \sqrt{(6-0)^2 + (7+1)^2} \\ &= \sqrt{36+64} = \sqrt{100} = 10 \end{aligned}$$



(v) Name the quadrilateral ABCD so formed.

(a) Square (b) rectangle

(c) rhombus (d) none of these

From (ii) $AB = 4\sqrt{5}$

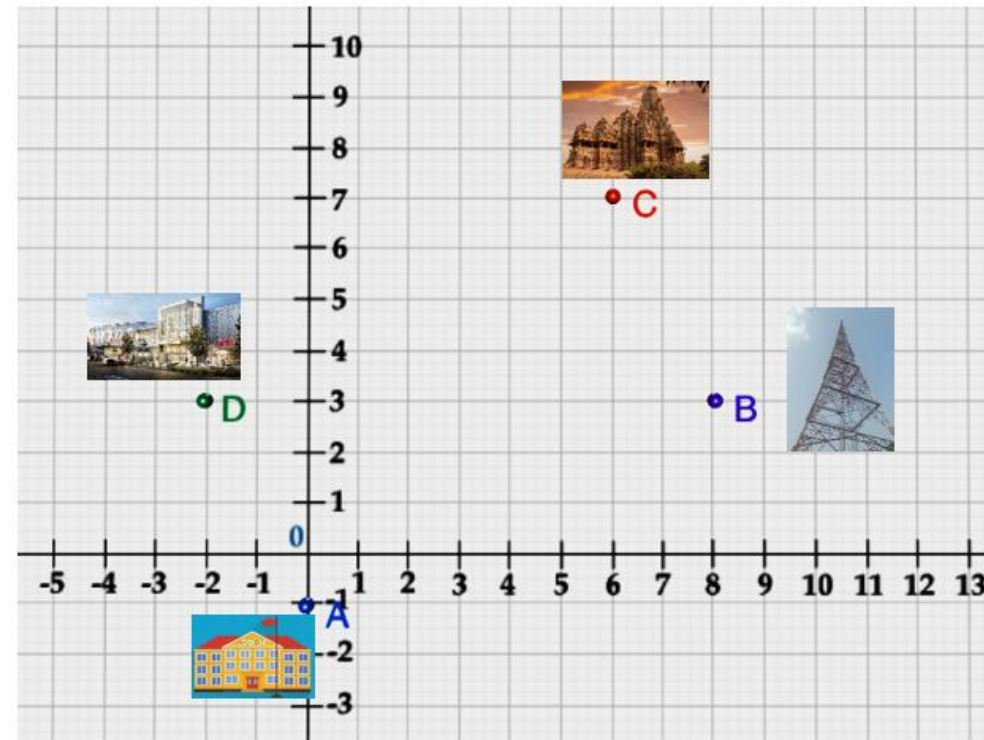
$$\begin{aligned} DC &= \sqrt{(6+2)^2 + (7-3)^2} \\ &= \sqrt{64+16} = \sqrt{80} = 4\sqrt{5} \end{aligned}$$

$$\begin{aligned} AD &= \sqrt{(-2-0)^2 + (3+1)^2} \\ &= \sqrt{4+16} = \sqrt{20} = 2\sqrt{5} \end{aligned}$$

$$\begin{aligned} \text{and } BC &= \sqrt{(6-8)^2 + (7-3)^2} \\ &= \sqrt{4+16} = \sqrt{20} = 2\sqrt{5} \end{aligned}$$

$\therefore AB = DC$ and $AD = BC$

Thus, opposite sides are equal.



From (iii) and (iv) we have

$BD = 10$ and $AC = 10$

Since opposite sides are equal and diagonals are equal, therefore ABCD is a rectangle.

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