MATHEMATICS 17   **EXERCISE 4**

I. Do as indicated.

1. Arrange the following numbers in increasing order of magnitude and plot them on the number line:

$$0, \tfrac{2}{3}, -\tfrac{1}{2}, 0.6, -0.\bar{5}, \pi, -1, 3.5$$

2. Find the value of each of the following.

   (a) $|10| + |-10|$

   (b) $\left|\dfrac{1}{3} - \dfrac{5}{3}\right| - \left|-\dfrac{1}{3} - \dfrac{5}{3}\right|$

   (c) $|x-2| - |x-3|$ if $x < 2$

   (d) $|3 - \pi| + |4 - \sqrt{3}|$

3. A square has a side AB with $A(1,1)$ and $B(a,1)$. Find two pairs of points each of which completes the square.

4. For each pair of points, find the distance between them and the midpoint of the line segment joining them.

   (a) $(1,-3), (4,-7)$
   (b) $(1,0), (-1,8)$

   (c) $(1.3,-1), (2.5,-0.5)$

5. Determine if the points $A(-1,1)$, $B(-1,5)$ and $C(4,2)$ are vertices of an isoceles triangle.

6. What is the value of k so that the distance between $(2,-3)$ and $(3,k)$ is $\sqrt{5}$?

7. Find all the points of the x-axis that are $\sqrt{61}$ units from $A(3,5)$.

8. What are the values of a and b so that $(3,7)$ is the midpoint of the line segment joining $(a,5)$ and $(-6,b)$?

9. Show that any midpoint of the hypotenuse of ny right triangle is equidistant from all three vertices. *(Hint: Let $A(0,a)$), $B(b,0)$ and $C(0,0)$ be the three vertices of the triangle.*

10. Find the perimeter of the trianlge with vertices $(2,1)$, $(4,5)$, and $(6,2)$.

11. Find those points whose ordinates are -5 and whose distance from the origin is 13.

12. Find the point on the x-axis equidistant from the points $(3,2)$ and $(0,5)$.

Examples from CAT by Castillo, et. al, MAT3rd by Vance

compiled by mpona2010