

Exercises — The Cartesian coordinate system

1. Plot and label the following points $(3, 5)$, $(-2, 6)$, $(-5, -2)$, $(-9/2, 5/2)$, $(5.5, 1.5)$ and $(0, 0)$.
 2. Find the distance between the points $(24, 10)$ and $(0, 0)$.
 3. Find the distance between $(15, 22)$ and $(4, 9)$.
 4. Find the distance between $(-23, -10)$ and $(3, 19)$.
 5. Plot the points $A=(1,3)$, $B=(2,6)$, $C=(4,7)$ and $D=(3,4)$. Connect these points by straight lines and determine what kind of a figure it outlines.
 6. What kind of a figure is outlined by the straight lines that connect the points $A=(2,5)$, $B=(3,7)$ and $C=(0,4)$?
 7. What kind of figure is outlined by the points $A=(6,1)$, $B=(2,-1)$, $C=(4,5)$ and $D=(0,3)$?
 8. Show that the points $A=(1,3)$, $B=(-2,8)$, and $C=(2,7)$ are corners of a right triangle.
 9. Sketch all points having x coordinate equal to 5.
 10. Sketch all points having y coordinate equal to -3.
 11. Sketch the region of points where $-3 \leq x \leq 5$ and $-5 \leq y \leq 10$.
 12. Sketch the points given by the data in the table below.
- | x | y |
|-----|-----|
| -2 | -1 |
| -1 | 0 |
| 0 | 1 |
| 1 | 2 |
| 2 | 3 |
| 3 | 4 |
| 5 | 6 |
| 10 | 11 |
13. Sketch the points given by the data in the table below.
- | x | y |
|-----|-----|
| -2 | -8 |
| -1 | -1 |
| 0 | 0 |
| 1 | 1 |
| 2 | 8 |
14. Let $f(x) = -x^3$. Plot the points $(-2, f(-2))$, $(-1, f(-1))$, $(0, f(0))$, $(1, f(1))$, and $(2, f(2))$. Sketch the straight lines joining these points.
 15. Suppose that $f(x) = (x - 3)^3$. Sketch the straight lines joining the points $(1, f(1))$, $(2, f(2))$, $(3, f(3))$, $(4, f(4))$, and $(5, f(5))$.