Distance between points using Pythagoras

6 questions | 16 marks

Equivalent correct methods earn the corresponding marks.

1. Find the distance between $(1, 2)$ and $(4, 6)$. [2 marks]

The changes are 3 and 4.

$d = \sqrt{9 + 16} = 5$.

Answer: 5 units

2. Find the distance between $(-3, -2)$ and $(5, 4)$. [2 marks]

The changes are 8 and 6.

$d = \sqrt{64 + 36} = 10$.

Answer: 10 units

3. Find the exact distance between $(0, 1)$ and $(3, 5)$. [2 marks]

The changes are 3 and 4.

$d = \sqrt{3^2 + 4^2} = 5$.

Answer: 5 units

4. Find the exact distance between $(2, -1)$ and $(7, 1)$, then round it to 1 decimal place. [3 marks]

The changes are 5 and 2.

$d = \sqrt{25 + 4} = \sqrt{29} \approx 5.385$.

To 1 decimal place this is 5.4.

Answer: $\sqrt{29}$ units; 5.4 units

5. A map grid uses 100 m per coordinate unit. A gate is at $(1, 1)$ and a shelter at $(4, 5)$. Find their straight-line separation. [3 marks]

The grid distance is $\sqrt{3^2 + 4^2} = 5$ units.

Multiply by 100 m per unit.

Answer: 500 m

6. Points $A(-2, 3)$, $B(4, 3)$ and $C(4, -5)$ form a triangle. Find its perimeter. [4 marks]

$AB = 6$ and $BC = 8$.

$AC = \sqrt{6^2 + 8^2} = 10$.

The perimeter is $6 + 8 + 10 = 24$.

Answer: 24 units