Coordinate Geometry Worksheets

Determine whether each given pair of end points lies on the same horizontal or vertical line. If so, find the length of the line segment that joins the pair of points. If not, explain how you know the points are not on the same horizontal or vertical line.

1. $(0, -2)$ and $(0,9)$

2. $(11,4)$ and $(2,11)$

3. $(3, -8)$ and $(3, -1)$

4. $(-4, -4)$ and $(5, -4)$

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1. $(0, -2)$ and $(0, 9)$

> The end points both have x-coordinates of 0, so they both lie on the y-axis, which is a vertical line. They lie on opposite sides of zero, so their absolute values have to be combined to get the total distance. $|-2| = 2$ and $|9| = 9$, so by addition, $2 + 9 = 11$. The length of the line segment with end points $(0, -2)$ and $(0, 9)$ is 11 units.

2. $(11, 4)$ and $(2, 11)$

> The points do not lie on the same horizontal or vertical line because they do not share a common x- or y-coordinate.

3. $(3, -8)$ and $(3, -1)$

> The end points both have x-coordinates of 3, so the points lie on a vertical line that passes through 3 on the x-axis. The y-coordinates lie on the same side of zero. The distance between the points is determined by subtracting their absolute values, $|-8| = 8$ and $|-1| = 1$. So, by subtraction, $8 - 1 = 7$. The length of the line segment with end points $(3, -8)$ and $(3, -1)$ is 7 units.

4. $(-4, -4)$ and $(5, -4)$

> The end points have the same y-coordinate of -4, so they lie on a horizontal line that passes through -4 on the y-axis. The numbers lie on opposite sides of zero on the number line, so their absolute values must be added to obtain the total distance, $|-4| = 4$ and $|5| = 5$. So, by addition, $4 + 5 = 9$. The length of the line segment with end points $(-4, -4)$ and $(5, -4)$ is 9 units.