

Distance Formula

L151

Example: Find the distance between the points (5, -1) and (3, 7).

$$\begin{aligned}\text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(3 - 5)^2 + (7 + 1)^2} \\ &= \sqrt{(-2)^2 + (8)^2} = \sqrt{4 + 64} = \sqrt{68} \approx \mathbf{8.25 \text{ units}}\end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) (1, 3), (5, 7)

2) (-8, -9), (-4, -10)

3) (10, 6), (1, -4)

4) (3, 2), (8, 2)

5) (9, -3), (-1, 8)

6) (10, 0), (0, 4)

7) (-7, -2), (6, 9)

8) (-6, 5), (8, -3)

9) (-5, -6), (-9, -4)

10) (2, 0), (-7, 1)

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Find the distance between the points. Round the answer to two decimal places.

1) (1, 3), (5, 7)

$$\underline{\sqrt{32} \approx 5.66 \text{ units}}$$

2) (-8, -9), (-4, -10)

$$\underline{\sqrt{17} \approx 4.12 \text{ units}}$$

3) (10, 6), (1, -4)

$$\underline{\sqrt{181} \approx 13.45 \text{ units}}$$

4) (3, 2), (8, 2)

$$\underline{5 \text{ units}}$$

5) (9, -3), (-1, 8)

$$\underline{\sqrt{221} \approx 14.87 \text{ units}}$$

6) (10, 0), (0, 4)

$$\underline{\sqrt{116} \approx 10.77 \text{ units}}$$

7) (-7, -2), (6, 9)

$$\underline{\sqrt{290} \approx 17.03 \text{ units}}$$

8) (-6, 5), (8, -3)

$$\underline{\sqrt{260} \approx 16.12 \text{ units}}$$

9) (-5, -6), (-9, -4)

$$\underline{\sqrt{20} \approx 4.47 \text{ units}}$$

10) (2, 0), (-7, 1)

$$\underline{\sqrt{82} \approx 9.06 \text{ units}}$$

Distance Formula

L152

Example: Find the distance between the points $(-2, -1)$ and $(3, -1)$.

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(3 + 2)^2 + (-1 + 1)^2} \\ &= \sqrt{(5)^2 + (0)^2} = \sqrt{25 + 0} = \sqrt{25} = \mathbf{5 \text{ units}} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) $(0, 8), (-10, -7)$

3) $(-9, 2), (-8, -1)$

5) $(-7, -5), (-3, 6)$

7) $(1, 2), (-5, -5)$

9) $(4, -9), (-1, -7)$

10) $(-2, 6), (-3, 7)$

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Distance Formula

L152

Example: Find the distance between the points $(-2, -1)$ and $(3, -1)$.

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(3 + 2)^2 + (-1 + 1)^2} \\ &= \sqrt{(5)^2 + (0)^2} = \sqrt{25 + 0} = \sqrt{25} = \mathbf{5 \text{ units}} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) $(0, 8), (-10, -7)$

$$\sqrt{325} \approx 18.0$$

21 units

3) $(-9, 2), (-8, -1)$

$$\sqrt{10} \approx 3.16$$

4)

units

5) $(-7, -5), (-3, 6)$

$$\sqrt{137} \approx 11.7$$

)

28 units

7) $(1, 2), (-5, -5)$

$$\sqrt{85} \approx 9.22 \text{ units}$$

$$\sqrt{106} \approx 10.3 \text{ units}$$

9) $(4, -9), (-1, -7)$

10) $(-2, 6), (-3, 7)$

$$\sqrt{29} \approx 5.39 \text{ units}$$

$$\sqrt{2} \approx 1.41 \text{ units}$$

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Distance Formula

L153

Example: Find the distance between the points (6, 10) and (4, 5).

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(4 - 6)^2 + (5 - 10)^2} \\ &= \sqrt{(-2)^2 + (-5)^2} = \sqrt{4 + 25} = \sqrt{29} \approx \mathbf{5.39 \text{ units}} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) (5, 0), (2, -10)

3) (-3, 9), (-6, -7)

5) (-4, 1), (-8, -5)

7) (-9, -1), (3, -1)

9) (8, -2), (7, 4)

10) (-3, 10), (1, -4)

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-5)

Distance Formula

L153

Example: Find the distance between the points (6, 10) and (4, 5).

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(4 - 6)^2 + (5 - 10)^2} \\ &= \sqrt{(-2)^2 + (-5)^2} = \sqrt{4 + 25} = \sqrt{29} \approx 5.39 \text{ units} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) (5, 0), (2, -10)

$$\sqrt{109} \approx 10.4$$

units

3) (-3, 9), (-6, -7)

$$\sqrt{265} \approx 16.2$$

47 units

5) (-4, 1), (-8, -5)

$$\sqrt{52} \approx 7.21$$

54 units

7) (-9, -1), (3, -1)

12 units

$$\sqrt{40} \approx 6.32 \text{ units}$$

9) (8, -2), (7, 4)

$$\sqrt{37} \approx 6.08 \text{ units}$$

10) (-3, 10), (1, -4)

$$\sqrt{212} \approx 14.56 \text{ units}$$

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Distance Formula

L2S1

Example: Find the distance between the points $(3, \frac{1}{4})$ and $(-2, 1)$.

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(-2 - 3)^2 + (1 - \frac{1}{4})^2} \\ &= \sqrt{(-5)^2 + (\frac{3}{4})^2} = \sqrt{25 + \frac{9}{16}} = \sqrt{25.56} \approx \mathbf{5.06 \text{ units}} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) $(-\frac{1}{2}, 3), (6, 9)$

3) $(1, 5), (7, -3)$

5) $(5, \frac{2}{3}), (8, 4)$

7) $(-9, 1), (10, 7)$

9) $(6, -5), (-\frac{5}{6}, 10)$

10) $(3, 3), (-7, 0)$

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Example: Find the distance between the points $(3, \frac{1}{4})$ and $(-2, 1)$.

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(-2 - 3)^2 + (1 - \frac{1}{4})^2} \\ &= \sqrt{(-5)^2 + (\frac{3}{4})^2} = \sqrt{25 + \frac{9}{16}} = \sqrt{25.56} \approx 5.06 \text{ units} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) $(-\frac{1}{2}, 3), (6, 9)$

$\sqrt{78.25} \approx 8.85$

2.65 units

3) $(1, 5), (7, -3)$

10 units

13.84 units

5) $(5, \frac{2}{3}), (8, 4)$

$\sqrt{20.11} \approx 4.48$

.1 units

7) $(-9, 1), (10, 7)$

$\sqrt{397} \approx 19.92$ units

$\sqrt{86.06} \approx 9.28$ units

9) $(6, -5), (-\frac{5}{6}, 10)$

$\sqrt{271.69} \approx 16.48$ units

10) $(3, 3), (-7, 0)$

$\sqrt{109} \approx 10.44$ units

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Distance Formula

L2S2

Example: Find the distance between the points (4, -6) and (2, 5).

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(2 - 4)^2 + (5 + 6)^2} \\ &= \sqrt{(-2)^2 + (11)^2} = \sqrt{4 + 121} = \sqrt{125} \approx \mathbf{11.18 \text{ units}} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) (1, 2), (3, 4)

3) (0, -9), $(\frac{1}{6}, -10)$

5) (7, 2), (-1, -3)

7) $(\frac{5}{7}, 0)$, (-8, 5)

9) (4, -4), (2, 8)

10) $(-6, \frac{1}{5})$, (4, 10)

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Distance Formula

L2S2

Example: Find the distance between the points (4, -6) and (2, 5).

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(2 - 4)^2 + (5 + 6)^2} \\ &= \sqrt{(-2)^2 + (11)^2} = \sqrt{4 + 121} = \sqrt{125} \approx \mathbf{11.18 \text{ units}} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) (1, 2), (3, 4)

$$\sqrt{8} \approx 2.83$$

$$\underline{\hspace{2cm}} \quad \mathbf{13.68 \text{ units}}$$

3) (0, -9), $(\frac{1}{6}, -10)$

$$\sqrt{1.03} \approx 1.0$$

$$\underline{\hspace{2cm}} \quad \mathbf{5.28 \text{ units}}$$

5) (7, 2), (-1, -3)

$$\sqrt{89} \approx 9.43$$

$$\underline{\hspace{2cm}} \quad \mathbf{7.84 \text{ units}}$$

7) $(\frac{5}{7}, 0)$, (-8, 5)

$$\sqrt{100.93} \approx 10.05 \text{ units}$$

$$\underline{\hspace{2cm}} \quad \mathbf{3 \text{ units}}$$

9) (4, -4), (2, 8)

$$\sqrt{148} \approx 12.17 \text{ units}$$

10) $(-6, \frac{1}{5})$, (4, 10)

$$\sqrt{196.04} \approx 14 \text{ units}$$

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Distance Formula

L2S3

Example: Find the distance between the points $(-1, 8)$ and $(\frac{3}{7}, 9)$.

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{\left(\frac{3}{7} + 1\right)^2 + (9 - 8)^2} \\ &= \sqrt{\left(\frac{10}{7}\right)^2 + (1)^2} = \sqrt{\frac{100}{49} + 1} = \sqrt{3.04} \approx 1.74 \text{ units} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) $(10, 9), (0, \frac{5}{8})$

3) $(3, -6), (5, 4)$

5) $(\frac{1}{9}, 7), (2, 5)$

7) $(-4, 8), (6, 1)$

9) $(2, 0), (-10, -5)$

10) $(9, 4), (6, \frac{7}{8})$

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Distance Formula

L2S3

Example: Find the distance between the points $(-1, 8)$ and $(\frac{3}{7}, 9)$.

$$\begin{aligned} \text{Distance} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{\left(\frac{3}{7} + 1\right)^2 + (9 - 8)^2} \\ &= \sqrt{\left(\frac{10}{7}\right)^2 + (1)^2} = \sqrt{\frac{100}{49} + 1} = \sqrt{3.04} \approx 1.74 \text{ units} \end{aligned}$$

Find the distance between the points. Round the answer to two decimal places.

1) $(10, 9), (0, \frac{5}{8})$

$\sqrt{170.14} \approx 13.23$

3) $(3, -6), (5, 4)$

$\sqrt{104} \approx 10.20$

5) $(\frac{1}{9}, 7), (2, 5)$

$\sqrt{7.57} \approx 2.75$

7) $(-4, 8), (6, 1)$

$\sqrt{149} \approx 12.21$ units

9) $(2, 0), (-10, -5)$

13 units

10) $(9, 4), (6, \frac{7}{8})$

$\sqrt{18.77} \approx 4.33$ units

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