

The Distance Formula

If $A(x_1,y_1)$ and $B(x_2,y_2)$ are any two points on the coordinate plane, then

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Practice Exercises

- A. Find PQ .
- $P(4,2), Q(8,2)$
 - $P(3,5), Q(3,-2)$
 - $P(0,0), Q(-4,3)$
 - $P(-2,6), Q(-7,7)$
 - $P(5,2), Q(0,-6)$
- B. Find the length of each side of $\triangle EXP$. Tell whether $\triangle EXP$ is isosceles, right, or neither.
- $E(4,3), X(-1,1), P(5,0)$
 - $E(-3,-2), X(1,-1), P(0,2)$
 - $E(0,8), X(9,6), P(8,10)$
- C. Find the perimeter and area of the triangles in Part B.
- D. Answer the following.
- Given three points $Q(-3, 4)$, $E(-1, 3)$, and $D(1, 2)$, find QE , QD , and ED and show that they are collinear.
 - $M(-5, -4)$, $C(-1, 3)$, and $D(1, -1)$ are three points on a plane. Find MC , MD , and CD and show that they are collinear points.
 - Show that the diagonals of $\square CUTE$ are congruent for $C(5, -1)$, $U(9, -1)$, $T(9, 0)$, and $E(5,0)$.
 - A triangle has vertices $S(-2, 5)$, $U(3, -8)$, and $N(8, 5)$. Find the length of the altitude to the shortest side.

Problem Set

- A. Find PQ .
- $P(-3,1), Q(3,9)$
 - $P(4,2), Q(9,14)$
 - $P(-8,0), Q(16,-24)$
 - $P(-3,4), Q(5,2)$
 - $P(4,5), Q(1,3)$
- B. Find the length of each side of $\triangle EXP$. Tell whether $\triangle EXP$ is isosceles, right, or neither.
- $E(1,8), X(6,-4), P(11,8)$
 - $E(3,3), X(5,8), P(7,3)$
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