

# Reteaching 1-6

**OBJECTIVE:** Finding the distance between two points in the coordinate plane      **MATERIALS:** Graph paper, ruler

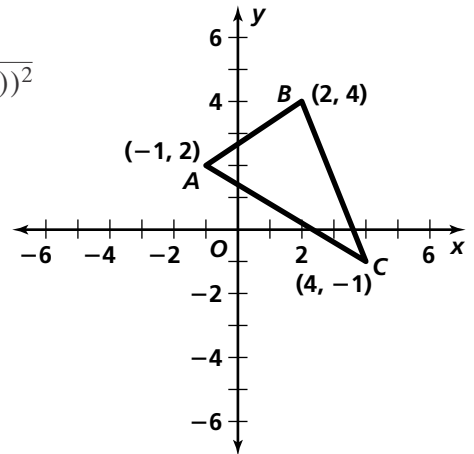
## Example

Show that the sum of the lengths of the two shortest sides of the triangle is greater than the length of the third side.

Use the distance formula:  $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$$\begin{aligned}
 BA &= \sqrt{(2 - (-1))^2 + (4 - 2)^2} & AC &= \sqrt{(-1 - 4)^2 + (2 - (-1))^2} \\
 &= \sqrt{3^2 + 2^2} & &= \sqrt{(-5)^2 + 3^2} \\
 &= \sqrt{9 + 4} & &= \sqrt{25 + 9} \\
 &= \sqrt{13} & &= \sqrt{34} \\
 &\approx 3.6 & &\approx 5.8
 \end{aligned}$$

$$\begin{aligned}
 BC &= \sqrt{(2 - 4)^2 + (4 - (-1))^2} \\
 &= \sqrt{(-2)^2 + 5^2} \\
 &= \sqrt{4 + 25} \\
 &= \sqrt{29} \\
 &\approx 5.4
 \end{aligned}$$

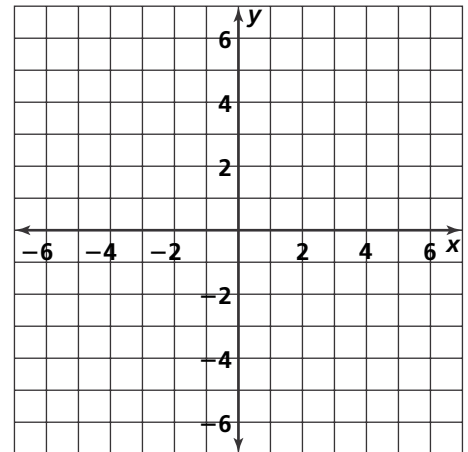


$3.6 + 5.4 > 5.8$ , so  $BA + BC > AC$ .

## Exercises

Use the grid at the right.

- Graph the coordinates  $X(-2, 4)$ ,  $Y(6, -3)$ , and  $Z(2, -2)$ . Connect the vertices to form a triangle.
- Find the lengths of the sides  $\overline{XY}$ ,  $\overline{YZ}$ , and  $\overline{XZ}$  to the nearest tenth.
- Show that the sum of the lengths of the two shortest sides is greater than the length of the third side.



Find the distance between the points to the nearest tenth.

- |                           |                         |                            |
|---------------------------|-------------------------|----------------------------|
| 4. $A(-2, -5), B(-4, 7)$  | 5. $R(3, -4), S(-1, 3)$ | 6. $G(-4, -5), H(3, 2)$    |
| 7. $C(2, 5), D(5, -6)$    | 8. $E(-7, 3), F(0, 9)$  | 9. $J(-11, -4), K(-3, -1)$ |
| 10. $X(0, 10), Y(-6, -7)$ | 11. $L(5, -6), M(8, 2)$ | 12. $U(9, 3), V(9, -14)$   |