

7-9DN-Analytic-proof

Proof: Using the distance formula to prove an isosceles triangle

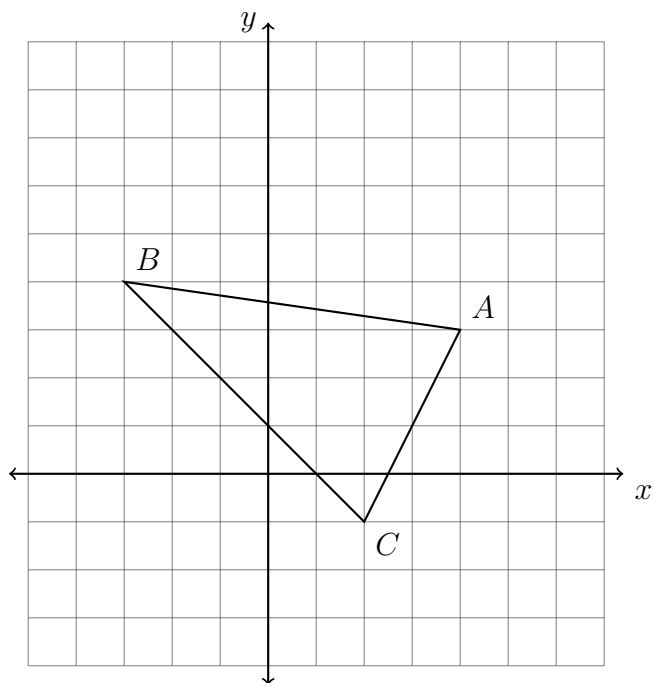
1. In this problem use the following theorem (copy it at the bottom of the page after your calculations):

A triangle is isosceles if and only two of its sides are congruent.

Shown below is triangle ABC , $A(4, 3)$, $B(-3, 4)$, and $C(2, -1)$.

Prove it is an isosceles triangle by

- (a) finding the length of each of the three sides,
- (b) stating which sides are congruent,
- (c) copying the theorem as your conclusion, adding *therefore $\triangle ABC$ is isosceles.*



Proof: Using slope to prove parallel sides of a trapezoid

2. In this problem use the following theorem (copy it at the bottom of the page after your calculations):

A quadrilateral is a trapezoid if and only exactly two of its sides are parallel.

David plotted $A(-1, 6)$, $B(3, 8)$, $C(6, -1)$, and $D(1, 0)$ to form a quadrilateral.

Prove that David's quadrilateral is a trapezoid by

- (a) finding the slope of each of the four sides,
- (b) stating which opposite sides are parallel, and which opposite sides are not,
- (c) copying the theorem as your conclusion, adding *therefore $ABCD$ is a trapezoid.*

