

Name: _____

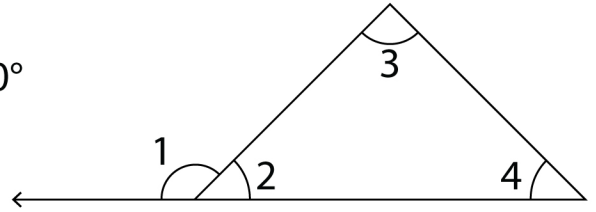
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Geometrical-Algebraic Properties and Proofs

Complete each proof.

1) Given: The sum of the angles in a triangle is 180°

Prove: $m\angle 1 = m\angle 3 + m\angle 4$



Statements

- ① $m\angle 2 + m\angle 3 + m\angle 4 = 180^\circ$
- ② _____
- ③ _____
- ④ _____
- ⑤ _____

Reasons

- ① Given
- ② _____
- ③ _____
- ④ _____
- ⑤ _____

2) Given: $2(x + 3) - 5 = 5x + 4$

Prove: $x = -1$

Statements

- ① $2(x + 3) - 5 = 5x + 4$
- ② _____
- ③ _____
- ④ _____
- ⑤ _____
- ⑥ _____
- ⑦ _____

Reasons

- ① Given
- ② _____
- ③ _____
- ④ _____
- ⑤ _____
- ⑥ _____
- ⑦ _____

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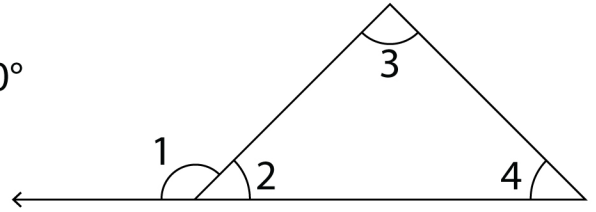
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Geometrical-Algebraic Properties and Proofs

Answers

1) Given: The sum of the angles in a triangle is 180°

Prove: $m\angle 1 = m\angle 3 + m\angle 4$



Statements

- ① $m\angle 2 + m\angle 3 + m\angle 4 = 180^\circ$
- ② $m\angle 1$ & $m\angle 2$ are supplementary
- ③ $m\angle 1 + m\angle 2 = 180^\circ$
- ④ $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3 + m\angle 4$
- ⑤ $m\angle 1 = m\angle 3 + m\angle 4$

Reasons

- ① Given
- ② Linear Pair
- ③ Supplementary Angles
- ④ Substitution Prop.
- ⑤ Subtraction Prop.

2) Given: $2(x + 3) - 5 = 5x + 4$

Prove: $x = -1$

Statements

- ① $2(x + 3) - 5 = 5x + 4$
- ② $2x + 6 - 5 = 5x + 4$
- ③ $2x + 1 = 5x + 4$
- ④ $1 = 3x + 4$
- ⑤ $-3 = 3x$
- ⑥ $-1 = x$
- ⑦ $x = -1$

Reasons

- ① Given
- ② Distributive Property
- ③ Combining Like terms
- ④ Subtraction Prop.
- ⑤ Subtraction Prop.
- ⑥ Division Prop.
- ⑦ Symmetric Prop.