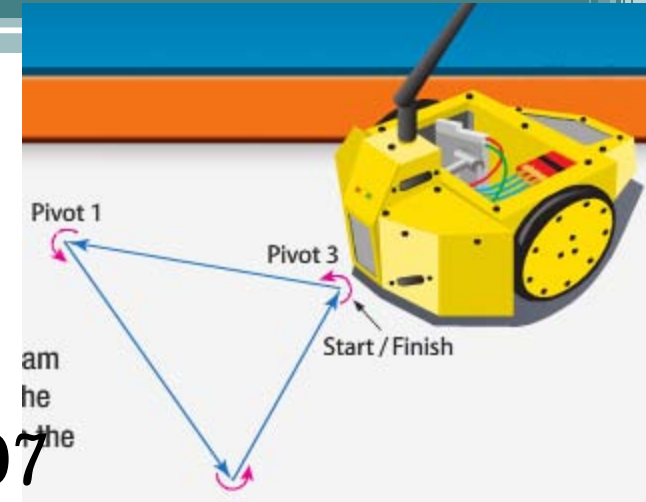


Fun Fact

MIT sponsors the annual Design 2.007 contest in which students design and build a robot.

One test of a robot's movements is to program it to move in a triangular path. The sum of the measures of the pivot angles through which the robot must turn will always be the same.



Essential Skill 2: Congruent Triangles

LT 2.2 Angles of Triangles

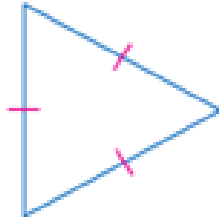
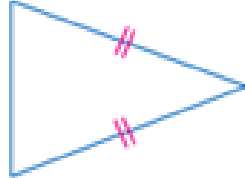
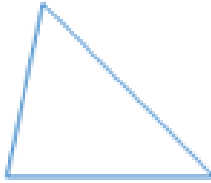
A decorative graphic consisting of several horizontal lines of varying lengths and colors (teal, light blue, white) extending from the right side of the slide.

Learning Objective

I will be able to . . .

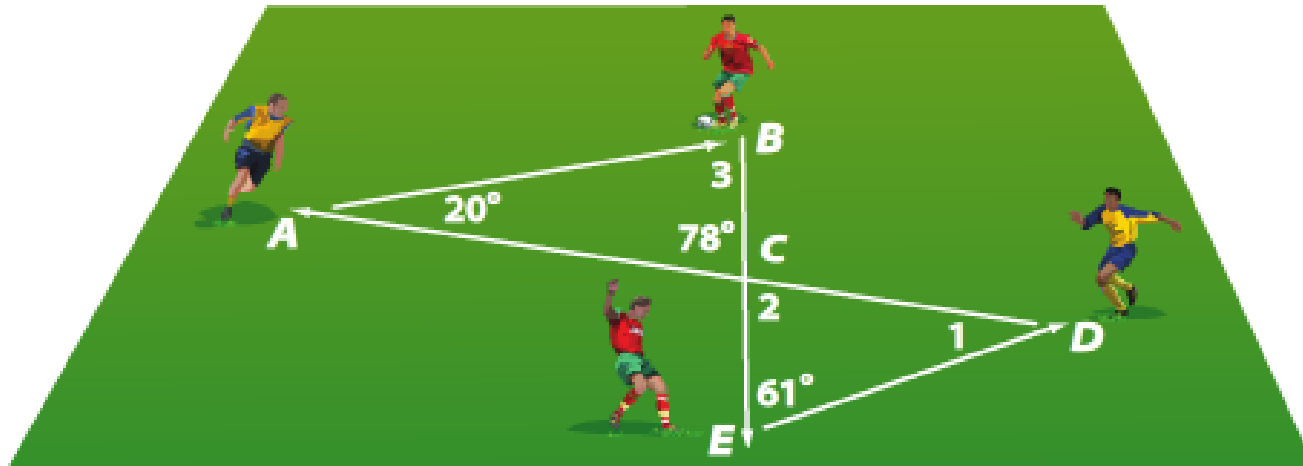
- * Apply the Triangle-Angle Sum theorem.**
- * Apply the Exterior Angle Theorem.**

Glossary: Classify by sides

Vocabulary Term	Definition/Description/Example	Drawing
Equilateral Triangle	3 congruent sides	 A blue equilateral triangle with three pink tick marks on its sides, indicating that all three sides are congruent.
Isosceles Triangle	At least 2 congruent sides	 A blue isosceles triangle with two pink double tick marks on its two slanted sides, indicating that these two sides are congruent.
Scalene Triangle	No congruent sides.	 A blue scalene triangle with no tick marks on its sides, indicating that all three sides are of different lengths.

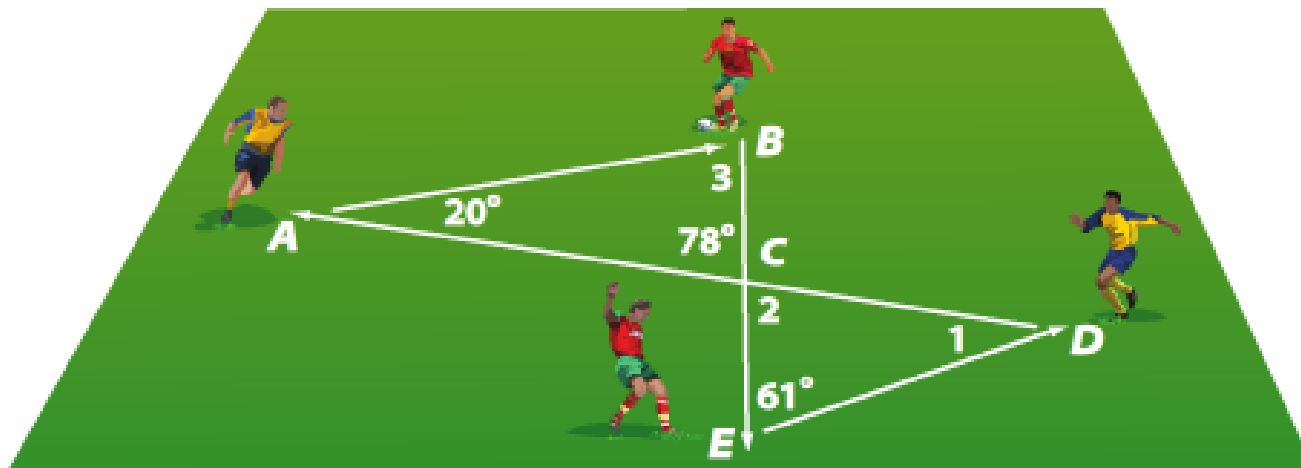
Example 1a

SOCCKER The diagram shows the path of the ball in a passing drill created by four friends. Find the measure of each numbered angle.



Example 1a

SOCCKER The diagram shows the path of the ball in a passing drill created by four friends. Find the measure of each numbered angle.



$$m\angle 3 + m\angle BAC + m\angle ACB = 180$$

$$m\angle 3 + 20 + 78 = 180$$

$$m\angle 3 + 98 = 180$$

$$m\angle 3 = 82$$

Triangle Angle-Sum Theorem

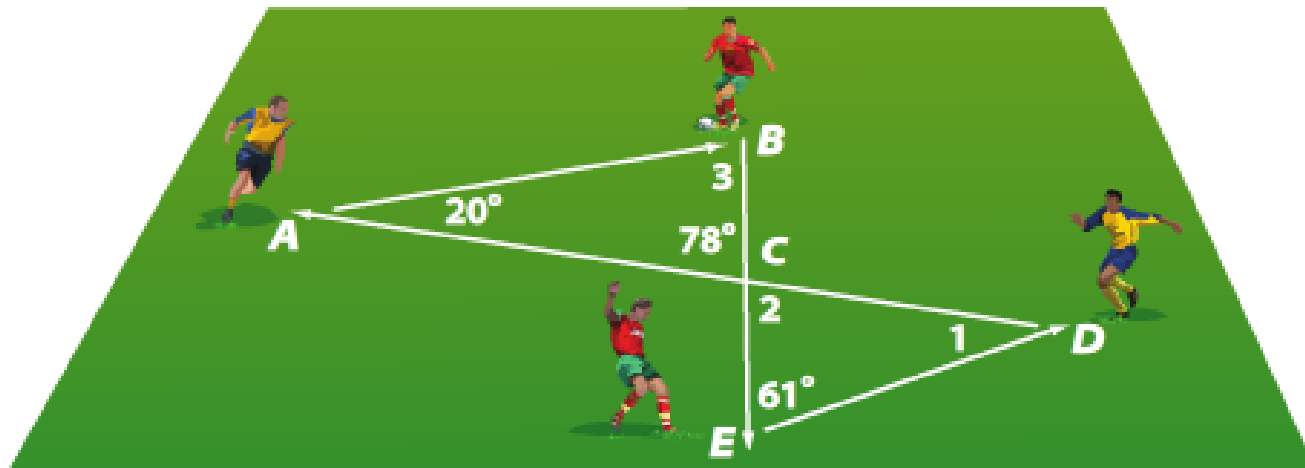
Substitution

Simplify.

Subtract 98 from each side.

Example 1a

SOCCKER The diagram shows the path of the ball in a passing drill created by four friends. Find the measure of each numbered angle.



Use $m\angle 2$ and $\angle CED$ of $\triangle CDE$ to find $m\angle 1$.

$$m\angle 1 + m\angle 2 + m\angle CED = 180$$

Triangle Angle-Sum Theorem

$$m\angle 1 + 78 + 61 = 180$$

Substitution

$$m\angle 1 + 139 = 180$$

Simplify.

$$m\angle 1 = 41$$

Subtract 139 from each side.