Missing Angles

Goals

- Understand that complementary angles form a right angle.
- Understand that supplementary angles form a straight angle.
- Understand that the vertical angles formed by intersecting line segments are equal angles.
- Understand that the sum of the measures of the angles of a triangle is 180°.
- Understand that the sum of the measures of the angles of a quadrilateral is 360°.

Notes

For this problem set, it is beneficial for students to have previous experiences drawing triangles and quadrilaterals and determining angle measures and angle sums.

Solutions to all problems in this set appear on page 15.

Missing Angles 1

Questions to Ask

- What is the measure of $\angle FAB$? (115°)
- What is the measure of $\angle BCE$? (70°) How do you know? (The total angle measure of a triangle is 180°. The right angle is 90°, and the given angle is 20°. So the measure of $\angle BCE$ is 180° − 90° − 20°, or 70°.)
- What is the sum of the measure of $\angle FEA$ and the measure of $\angle AEB$? (90°) How do you know? ($\angle FEA$ and $\angle AEB$ together are supplementary to the right angle.)

Solutions

1. 135°
2. 65°
3. Possible answer: Since the measure of $\angle FEA$ and the measure of $\angle AEB$ together are 90° and the measure of $\angle AEB$ is 45°, then the measure of $\angle FEA$ is 45°; 70° + 45° = 115°. The total angle measure of Triangle FEA is 180°. So the measure of $\angle AFE$ is 180° − 115°, or 65°.

Missing Angles 1

Quadrilateral *ABCF* is a trapezoid.

NO
MEASURING
ALLOWED!

D

F   *E*
                C

                20°

70°

45°

A   *B*
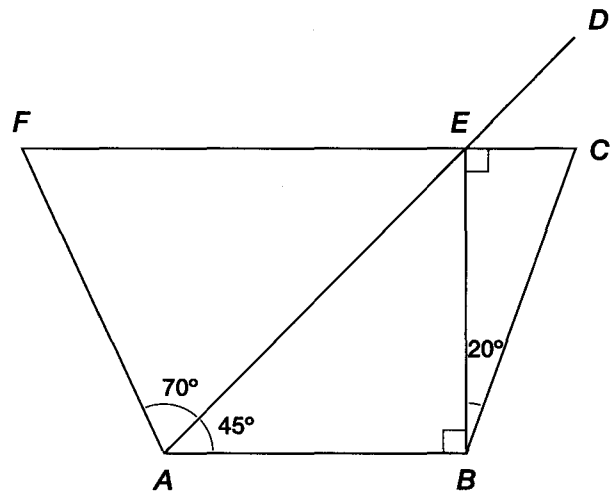
1. Measure of $\angle FED$ = _____

2. Measure of $\angle AFE$ = _____

3. Explain how you found the measure of $\angle AFE$. _____

_____

_____

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