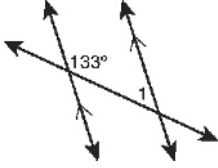


LESSON
4-2

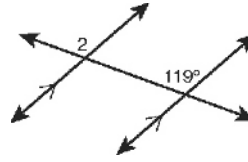
Transversals and Parallel Lines

Practice and Problem Solving: A/B

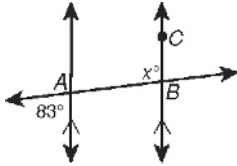
Find each angle measure.



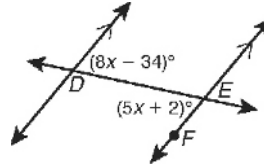
1. $m\angle 1$ _____



2. $m\angle 2$ _____



3. $m\angle ABC$ _____



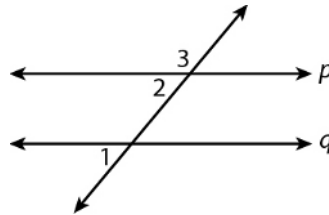
4. $m\angle DEF$ _____

Complete the two-column proof to show that same-side exterior angles are supplementary.

5. **Given:** $p \parallel q$

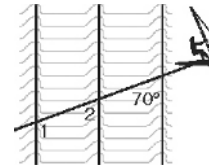
Prove: $m\angle 1 + m\angle 3 = 180^\circ$

Proof:



| Statements | Reasons |
|------------------------------|-----------------------------|
| 1. $p \parallel q$ | 1. Given |
| 2. a. _____ | 2. Lin. Pair Thm. |
| 3. $\angle 1 \cong \angle 2$ | 3. b. _____ |
| 4. c. _____ | 4. Def. of $\cong \angle$ s |
| 5. d. _____ | 5. e. _____ |

6. Ocean waves move in parallel lines toward the shore. The figure shows Sandy Beaches windsurfing across several waves. For this problem, think of Sandy's wake as a line. $m\angle 1 = (2x + 10)^\circ$ and $m\angle 2 = (4y - 30)^\circ$. Find x and y .



$x =$ _____

$y =$ _____

UNIT 2 Lines, Angles and Triangles

MODULE 4 Lines and Angles

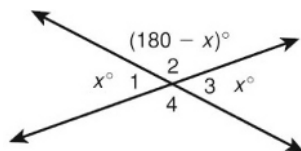
LESSON 4-1

Practice and Problem Solving: A/B

- 180°
- \overline{QR}
- 130°
- 40°
- 35
- 100
- 50°
- 130°
- $m\angle DEF = 29^\circ$; $m\angle FEG = 61^\circ$
- $m\angle DEF = 91^\circ$; $m\angle FEG = 89^\circ$
- Possible answers: $\angle 1$ and $\angle 3$ or $\angle 2$ and $\angle 4$
- Possible answers: $\angle 1$ and $\angle 2$; $\angle 2$ and $\angle 3$; $\angle 3$ and $\angle 4$; or $\angle 1$ and $\angle 4$
- right
- 45° ; 45°

Practice and Problem Solving: C

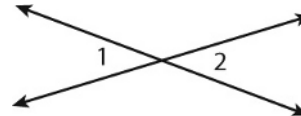
1–3. Possible answer:



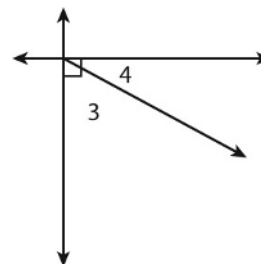
- The measures of the vertical angles are equal.
- a. $\angle 1 \cong \angle 2$
b. $m\angle 1 = m\angle 2$
c. $\angle 2$ and $\angle 4$ are compl.
d. Given
e. $m\angle 2 + m\angle 4 = 90^\circ$
f. Defn. Comp. $\angle s$
g. $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 4$

Practice and Problem Solving: Modified

- complementary angles
- vertical angles
- supplementary angles; linear pair
- right angle
- 90°
- 20°
- 40° ; 140°
- 120°
- 30°
- Possible answer:



- Possible answer:



Reading Strategies

- complementary
- vertical
- supplementary
- linear, adjacent, or supplementary
- adjacent
- complementary

Success for English Learners

- complementary
- 103.7°

LESSON 4-2

Practice and Problem Solving: A/B

- 47°
- 119°
- 97°

4. 62°
5. a. $m\angle 2 + m\angle 3 = 180^\circ$
 b. Corr. \angle s Thm.
 c. $m\angle 1 = m\angle 2$
 d. $m\angle 1 + m\angle 3 = 180^\circ$
 e. Subst.
6. $x = 50$; $y = 25$

Practice and Problem Solving: C

1. Possible answer: $m\angle 1 + m\angle 2 = 180^\circ$ and $m\angle 3 + m\angle 4 = 180^\circ$ by the Same-Side Int. \angle s Thm. Thus, the total of the angle measures is 360° .
2. 360°
3. 360° ; Possible answer:

| Statements | Reasons |
|---|-----------------------------------|
| 1. Draw \overline{BE} parallel to \overline{AD} . | 1. Construction |
| 2. $m\angle 1 + m\angle ABE = 180^\circ$, $m\angle 4 + m\angle DEB = 180^\circ$ | 2. Same-Side Int. \angle s Thm. |
| 3. $m\angle 1 + m\angle 4 + m\angle ABE + m\angle DEB = 360^\circ$ | 3. Add Prop. of = |
| 4. $m\angle 3 + m\angle CEB + m\angle CBE = 180^\circ$ | 4. Given |
| 5. $m\angle DEB + m\angle CEB = 180^\circ$ | 5. Lin. Pair Thm. |
| 6. $m\angle 3 + m\angle CEB + m\angle CBE = m\angle DEB + m\angle CEB$ | 6. Subst. (Steps 4,5) |
| 7. $m\angle 3 + m\angle CBE = m\angle DEB$ | 7. Subtr. Prop. of = |
| 8. $m\angle 1 + m\angle 3 + m\angle 4 + m\angle ABE + m\angle CBE = 360^\circ$ | 8. Subst. (Steps 3,7) |
| 9. $m\angle 2 = m\angle ABE + m\angle CBE$ | 9. Angle Add. Post. |
| 10. $m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 = 360^\circ$ | 10. Subst. (Steps 8, 9) |

Practice and Problem Solving: Modified

1. 140°
2. 70°
3. 75
4. 150
5. congruent
6. equal
7. parallel; transversal
8. supplementary
9. congruent
10. $\angle 3$ and $\angle 5$; $\angle 4$ and $\angle 6$
11. $\angle 1$ and $\angle 7$; $\angle 2$ and $\angle 8$
12. $\angle 3$ and $\angle 6$; $\angle 4$ and $\angle 5$

Reading Strategies

1. $\angle 1 \cong \angle 5$
2. $\angle 2 \cong \angle 6$
3. $\angle 3 \cong \angle 7$
4. $\angle 4 \cong \angle 8$
5. $\angle 2 \cong \angle 8$
6. $\angle 3 \cong \angle 5$
7. $\angle 1 \cong \angle 7$
8. $\angle 4 \cong \angle 6$
9. $\angle 2 + \angle 5 = 180^\circ$
10. $\angle 3 + \angle 8 = 180^\circ$
11. $m\angle 6 = 47^\circ$ by the Corresponding Angles Postulate
12. $m\angle 3 = 133^\circ$ by the Same-Side Interior Angles Theorem

Success for English Learners

1. All the angle pairs will be either congruent angles or supplementary angles.
2. Same-side interior angles, angles that form a linear pair, and exterior angles on the same side of the transversal are supplementary angles.

LESSON 4-3

Practice and Problem Solving: A/B

1. $m \parallel n$; Conv. of Alt Int. \angle s Thm.
2. $m \parallel n$; Conv. of Corr. \angle s Thm.