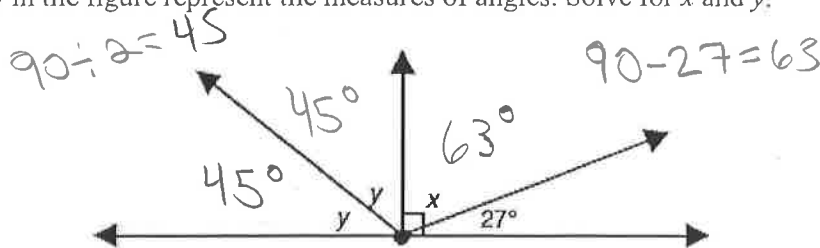**Postulates, Properties, and Theorems Quiz Review**

And Now From a New Angle
Special Angles and Postulates

1. Suppose that $m\angle A = 66°$, $\angle B$ is complementary to $\angle A$, and $\angle C$ is supplementary to $\angle B$. What are the measures of angles B and C?

2. The variables x and y in the figure represent the measures of angles. Solve for x and y.

$90 \div 2 = 45$

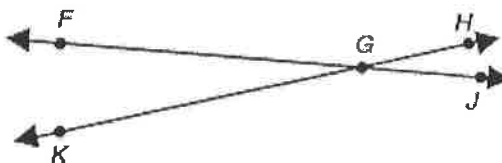$90 - 27 = 63$

$45°$ $45°$ $63°$ $45°$ y y x $27°$

3. Use the Segment Addition Postulate to write four different statements about the figure shown.

EX: $DG + GJ = DJ$
$GJ + JM = GM$
$DJ + JM = DM$

$DG + GM = DM$

D   G   J   M

4. Name the postulate that tells you that $m\angle FGH + m\angle HGJ = m\angle FGJ$ in the figure shown.

F   G   H   J   K

Angle Addition Postulate

Forms of Proof
Paragraph Proof, Two-Column Proof, Construction Proof, and Flow Chart Proof

5. Identify the property that justifies each statement.

   a.   If $\overline{AB} \cong \overline{PR}$ and $\overline{PR} \cong \overline{ST}$, then $\overline{AB} \cong \overline{ST}$.   Transitive Property

   b.   If $JK = 6$ centimeters and $CD = 6$ centimeters, then $JK = CD$.   Substitution Property

   c.   Angle ABC is congruent to angle ABC.   Reflexive Property

   d.   If $m\angle 3 = m\angle 1$, then $m\angle 3 + m\angle 2 = m\angle 1 + m\angle 2$.   Addition Property
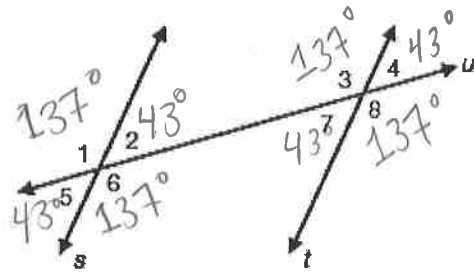
What's Your Proof?
Angle Postulates and Theorems

6. Use the given information to determine the measures of each of the numbered angles.
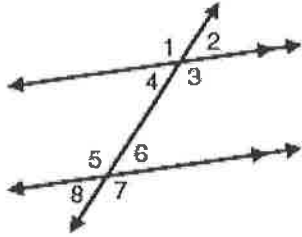
a. $p \parallel q$ and $m\angle 1 = 54°$
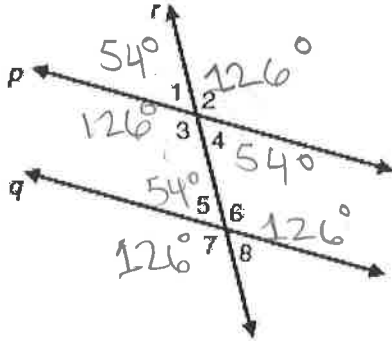
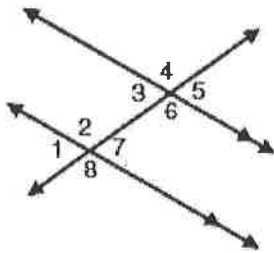b. $s \parallel t$ and $m\angle 1 = 137°$

7. Determine the relationship between the indicated angles and write a postulate or theorem that justifies your answer.

   a.   Angles 2 and 8
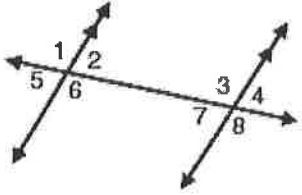

   Alternate Exterior Angles:

   Alternate Exterior Angles are congruent

   b.   Angles 6 and 7
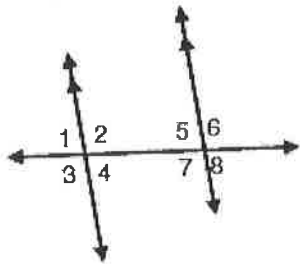

   Same-Side Interior Angles:

   Same Side Interior Angles are supplementary

   c.   Angles 1 and 4

   Same-Side Exterior Angles:

   Same Side Exterior Angles are Supplementary

   d.   Angles 4 and 5

   Alternate Interior Angles:

   Alternate Interior Angles are congruent

Standardized Test Practice

_____ 8. Which of the following statements is **false**?

    a. A postulate is a statement that can be proven. ~A Postulate is accepted without Proof~ (handwritten)
    b. The essential difference between Euclidean geometry and non-Euclidean geometry is the nature of parallel lines.
    c. The transitive property states that "if $a = b$ and $b = c$, then $a = c$."
    d. All right angles are congruent.

_____ 9. Which of the following is an application of the Substitution Property?

    a. If $m\angle A = m\angle B$, then $m\angle A - m\angle C = m\angle B - m\angle C$.
    b. $m\angle A = m\angle A$
    c. If $m\angle A = m\angle B$ and $m\angle B = m\angle C$, then $m\angle A = m\angle C$.
    d. If $m\angle A = 110°$ and $m\angle B = 110°$, then $m\angle A = m\angle B$. _replacing $110°$ with $m\angle B$_ (handwritten)

_____ 10. The figure shows intersecting lines. Which choice shows vertical angles?
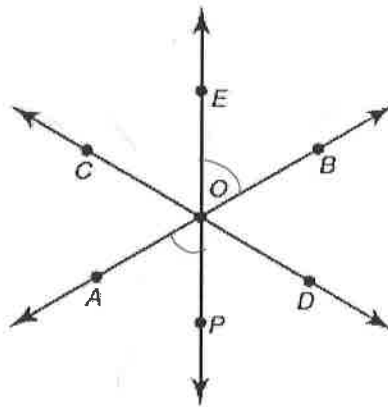
    a. $\angle COE$ and $\angle BOD$
    b. $\angle COE$ and $\angle EOD$
    c. $\angle EOB$ and $\angle AOP$ ✓
    d. $\angle AOC$ and $\angle COE$

____ **11.** In the figure, two angles are marked congruent.
Which theorem or postulate justifies the conclusion that $m \parallel n$?
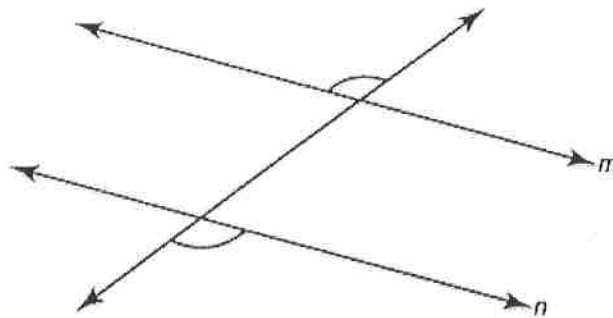
Could be →

a. Alternate Exterior Angle Theorem
b. Alternate Exterior Angle Converse Theorem   *haven't learned yet but applicable*
c. Corresponding Angle Converse Postulate
d. Vertical Angle Theorem

A or B acceptable

_____ **12.** Read the proof of the Same-Side Exterior Angle Theorem.

Given: $\ell \parallel m$
Prove: $\angle 1$ and $\angle 6$ are supplementary.
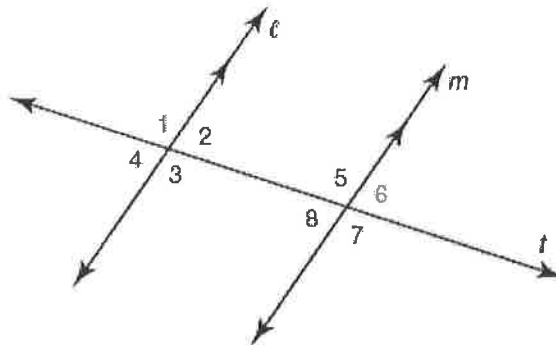
Statements	Reasons
1. $\ell \parallel m$	1. Given
2. $\angle 1 \cong \angle 5$	2. <u>Corresponding Angle Theorem</u>
3. $m\angle 1 = m\angle 5$	3. Definition of congruent angles
4. $\angle 1$ and $\angle 2$ are a linear pair.	4. Definition of a linear pair
5. $\angle 1$ and $\angle 2$ are supplementary.	5. Linear Pair Postulate
6. $m\angle 1 + m\angle 2 = 180°$	6. Definition of supplementary angles
7. $m\angle 5 + m\angle 2 = 180°$	7. <u>Substitution</u>
8. $\angle 2$ and $\angle 5$ are supplementary.	8. Definition of supplementary angles

What are the two missing reasons in the proof?

    a.   (2) Same-Side Exterior Angle Theorem
           (7) Substitution
    b.   (2) Corresponding Angle Theorem
           (7) Substitution
    c.   (2) Same-Side Exterior Angle Theorem
           (7) Definition of supplementary angles
    d.   (2)Corresponding Angle Theorem
           (7) Addition Property