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A Penny for Your Thoughts

Directions: Find the prime factorization for each number surrounding the penny. Then complete the statement below by filling in the blanks. To fill in a blank, look at the prime factorization written below it, and insert the matching letter from the penny.

E) 80

C) 40 T) 92

A) 64 I) 144

S) 108 H) 580

M) 216

N) 200

O) 70 K) 630

W) 56

Finish the Statement: A man who constantly says, "A penny for your thoughts" . . .

___	___		___	___	___	___
2^4 x 3^2	2^2 x 3^3		2^6	2^3 x 3^3	2^6	2^3 x 5^2

___	___	___		___	___	___	___	___
2^3 x 7	2^2 x 5 x 29	2 x 5 x 7		2^3 x 3^3	2^6	2 x 3^2 x 5 x 7	2^4 x 5	2^2 x 3^3

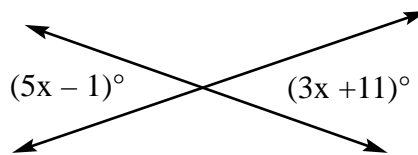| ___	___		___	___	___	___	___
2^3 x 5^2	2 x 5 x 7		2^3 x 5	2^4 x 5	2^3 x 5^2	2^2 x 23	2^2 x 3^3

Focus: Finding the prime factorization of numbers

❏ Vertical, Complementary, and Supplementary Angles

Vertical angles are formed when two lines intersect. The angles opposite each other are called vertical angles, and they are congruent.
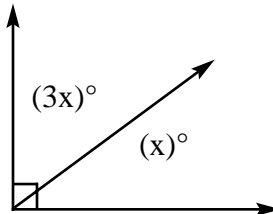
    Example:

$(5x - 1)°$ $(3x + 11)°$

Solution: $(5x - 1)° = (3x + 11)°$
$(2x)° = 12°$
$x° = 6°$

    The first angle is $5(6) - 1 = 29°$.   The second angle is $3(6) + 11 = 29°$.

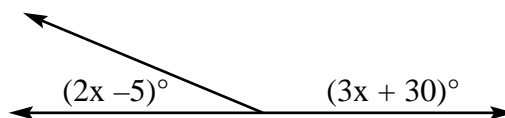*Complementary angles* are two angles whose sum is 90°.

    Example:

$(3x)°$
$(x)°$

Solution: $(3x + x)° = 90°$
$(4x)° = 90°$
$x° = 22.5°$

    The larger angle is $3x = 3(22.5) = 67.5°$.
    The smaller angle is $x = 22.5°$.

Supplementary angles are two angles whose sum is 180°.

    Example:

$(2x - 5)°$ $(3x + 30)°$

Solution: $(2x - 5)° + (3x + 30)° = 180°$
$(5x + 25)° = 180°$
$(5x)° = 155°$
$x° = 31°$
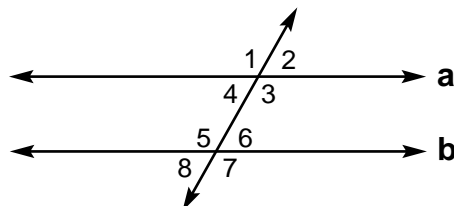
    The larger angle is $(3x + 30)° = 3(31) + 30 = 123°$.
    The smaller angle is $(2x - 5)° = 2(31) - 5 = 57°$.

❏ Angles Formed by a Transversal and Parallel Lines

When dealing with angles formed by a transversal and parallel lines, note the following rules:

- Alternate interior angles are congruent. ($\angle 3 \cong \angle 5$, $\angle 4 \cong \angle 6$)
- Alternate exterior angles are congruent. ($\angle 1 \cong \angle 7$, $\angle 2 \cong \angle 8$)
- Vertical angles are congruent. ($\angle 1 \cong \angle 3$, $\angle 2 \cong \angle 4$, $\angle 5 \cong \angle 7$, $\angle 6 \cong \angle 8$)
- Interior angles on the same side are supplementary. ($\angle 4 + \angle 5 = 180°$, $\angle 6 + \angle 3 = 180°$)
- Exterior angles on the same side are supplementary. ($\angle 1 + \angle 8 = 180°$, $\angle 2 + \angle 7 = 180°$)

    1 / 2
    4 / 3   **a**

    a ‖ b

    5 / 6   **b**
    8 / 7