Worksheet #4

MISSING ANGLE IN A TRIANGLE

MeandMath
BELIEVE YOURSELF

Learning goal: Students will be able to apply the angle sum property and exterior angle property of triangles to find unknown angles.

Instruction: Solve for x:

Problem 1: Triangle P, R, Q with exterior point H. $30°$ at P, $8 + 6x$ at R, $4x + 2$ at Q.

Problem 2: Triangle T, S, U with point A. $5x + 10$ at T, $58°$ at S, $11x + 2$ at U.

Problem 3: Triangle C, D, B with point W. $46°$ at C, $-1 + 8x$ at D, $18x + 5$ at B.

Problem 4: Triangle C, A, B with exterior point Q. $10x - 10$ at C, $12x - 4$ at A, $30°$ at B.

Problem 5: Triangle C, D, B with point A. $120°$ at A/D, $15x + 5$ at C, $22x + 4$ at B.

Problem 6: Triangle D, B, C with point V. $9x - 2$ at D, $20x + 5$ at B, $40°$ at C.

Name: **Grade:**   **Score:**

Worksheet #4(Answers)
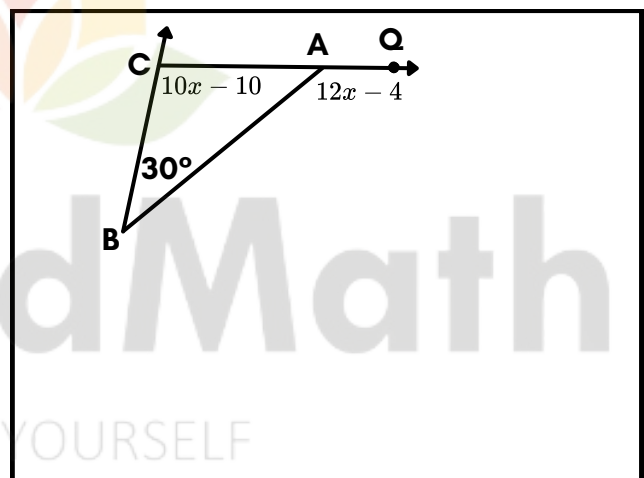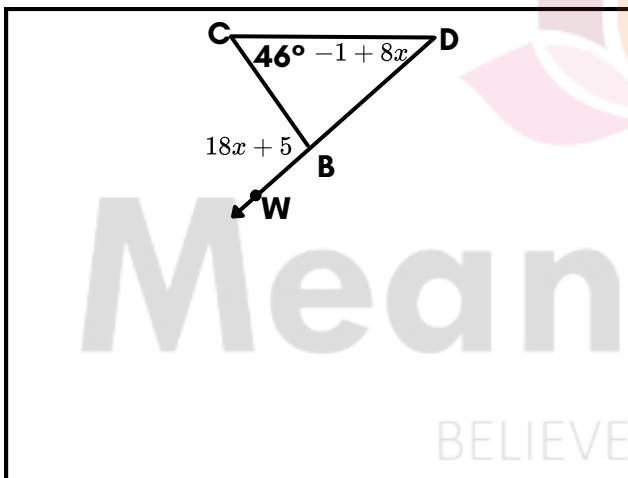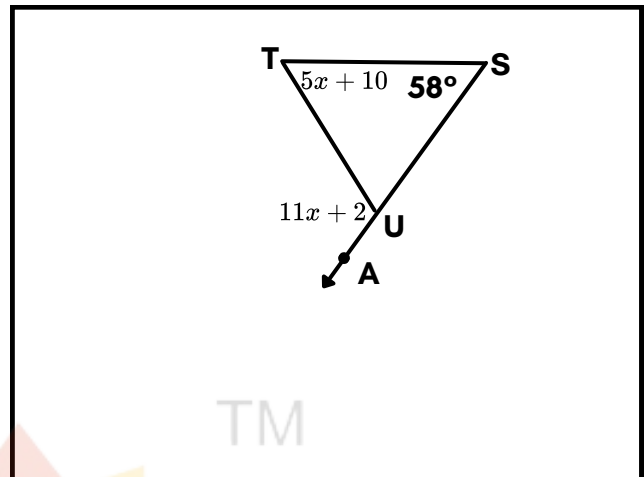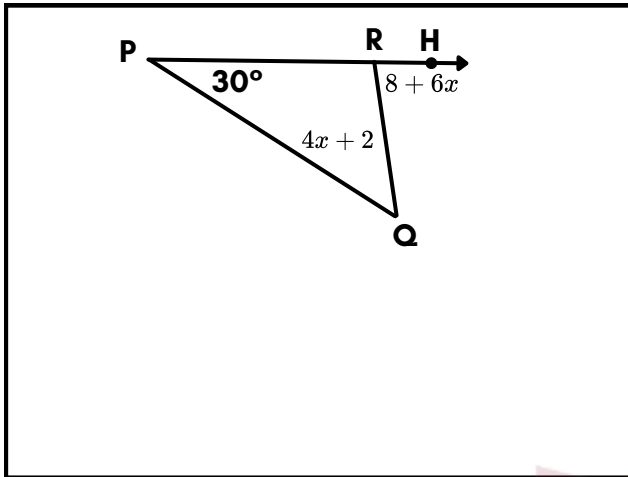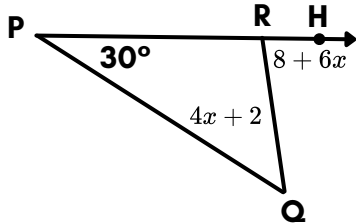
MISSING ANGLE IN A TRIANGLE

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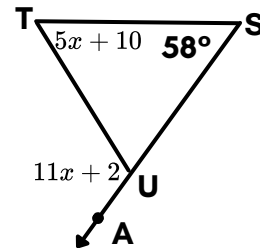
Instruction: Solve for x:

Diagram 1: P, R, H, Q with angles 30°, $8 + 6x$, $4x + 2$

Solution:

∠1 = 80°, Exterior angle = 125°, ∠x = ?

Use exterior angle property

125° = 80° + x

x = 125° - 80° → x = 45°

Diagram 2: T, S, U, A with angles $5x + 10$, 58°, $11x + 2$

Solution:

∠1 = 50°, Exterior angle = 115°, ∠x = ?

Use exterior angle property

115° = 50° + x

x = 115° - 50° → x = 65°

Diagram 3: C, D, B, W with angles 46°, $-1 + 8x$, $18x + 5$
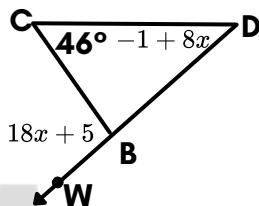
Solution:

∠1 = 30°, Exterior adjacent angle = 80°,

Interior angle = 180° - 80° = 100°

x + 30° + 100° = 180°

x = 180° - 130°

x = 50°

Diagram 4: C, A, Q, B with angles $10x - 10$, $12x - 4$, 30°
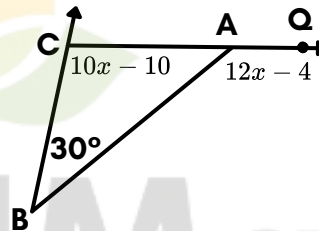
Solution:

∠1 = 70°, ∠2 = 36°, ∠x = ?

x + 70° + 36° = 180°

x = 180° - 106°

x = 74°

Diagram 5: C, A, D, B with angles $15x + 5$, 120°, $22x + 4$
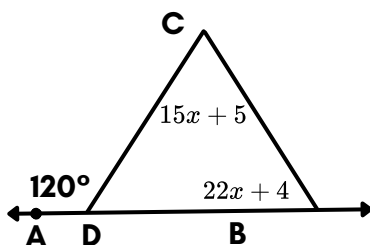
Solution:

∠B = 30°, Exterior angle ∠DAB = 80°, ∠x = ?

80° = 30° + x

x = 80° - 30°

x = 50°

Diagram 6: D, B, V, C with angles $9x - 2$, $20x + 5$, 40°
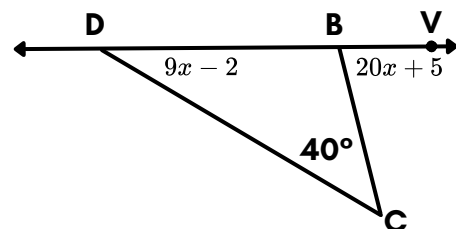
Solution:

∠A = 50°, Exterior angle at C = 115°, ∠x = ?

115° = 50° + x

x = 115° - 50°

x = 65°