

Triangles (part 2)

Draw a triangle with one side extended. Get out your protractor and measure the indicated angles.

Write a statement about these angles.

2 \angle s inside \triangle
are = to \angle outside \triangle

title

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When the sides of a triangle are extended . . .

Exterior angles—the angles that form a linear pair with the interior angles

Exterior Angle Theorem

The measure of an exterior angle of a triangle is equal to the sum of the measures of the two nonadjacent interior angles.

$\angle 1$ is exterior \angle

Find the value of x . Then find the measure of the exterior angle shown.

$90 + 38 = 8x$
 $\frac{128}{8} = \frac{8x}{8}$
 $16 = x$
 $8(16) = 128^\circ$

exterior angle thm

example

Find the value of x .

$x + 42 = 75$
 $x = 33$

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Find the value of x . Then find the measure of the exterior angle shown.

$3x + 15 + 6x - 10 = 8x + 18$
 $9x + 5 = 8x + 18$
 $x + 5 = 18$
 $x = 13$

$8(13) + 18$
 122°

example

Find the value of x .

180
 $- 131$
 $x = 49^\circ$

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Conclusion

- How is the exterior angle of a triangle related to other angles in the triangle.
- Any Questions?

Ext $\angle = 2 \angle s$ added together that are not adjacent to the Ext \angle .

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Assignment
Triangles Wkst 2

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