

#0 Theta Ciphering
MAΘ National Convention 2026

Triangle ABC's three interior angles are in the ratio 2:5:8. What is the complement of this triangle's middle interior angle?

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Solve for x : $\log_4(5x+9)=3$

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If $x - y = 14$ and $\sqrt{x} + \sqrt{y} = 4$, find the value of x , written in fractional form.

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#4 Theta Ciphering
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The locus of points (x, y) in a plane equidistant from the points $(-2, -4)$ and $(3, 6)$ can be expressed in the form $Ax + By = C$, where A , B , and C are relatively prime integers with $A > 0$. What is the value of $2A + B - C$?

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One interior angle of a regular polygon has a measure of 170° . If a side of the polygon has length 9 cm, what is the perimeter, in cm, of the polygon?

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$$\sqrt{6+x} = 2 + \sqrt{10-3x}$$

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#9 Theta Ciphering
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#10 Theta Ciphering
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Find the set of values for x , expressed in interval form, such that the function below is strictly positive.

$$f(x) = (-3x + 2)(x - 5)^2(x - 11)$$

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$$h(x) = 12x^3 + 4x^2 - 23x - 15$$

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#13 Theta Ciphering
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#14 Theta Ciphering
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