



TRANSFORMACIONES TRIGONOMÉTRICAS DE SUMAS Y RESTAS

Sumas y diferencias a producto ($A > B$)

$$\text{Sen}A + \text{Sen}B = 2 \cdot \text{Sen}\left(\frac{A+B}{2}\right) \cdot \text{Cos}\left(\frac{A-B}{2}\right)$$

$$\text{Sen}A - \text{Sen}B = 2 \cdot \text{Cos}\left(\frac{A+B}{2}\right) \cdot \text{Sen}\left(\frac{A-B}{2}\right)$$

$$\text{Cos}A + \text{Cos}B = 2 \cdot \text{Cos}\left(\frac{A+B}{2}\right) \cdot \text{Cos}\left(\frac{A-B}{2}\right)$$

$$\text{Cos}B - \text{Cos}A = 2 \cdot \text{Sen}\left(\frac{A+B}{2}\right) \cdot \text{Sen}\left(\frac{A-B}{2}\right)$$

Trabajando en clase

Integral

1. Simplifica:

$$E = \frac{\text{Cos}7x + \text{Cos}5x}{\text{Sen}7x - \text{Sen}5x}$$

2. Reduce:

$$Q = (\text{Sen}50^\circ + \text{Sen}10^\circ) \text{Sec}20^\circ$$

3. Simplifica:

$$L = \frac{\text{Sen}30^\circ - \text{Sen}10^\circ}{\text{Cos}10^\circ - \text{Cos}30^\circ}$$

PUCP

4. Reduce:

$$L = (\text{Sen}9x + \text{Sen}x) \text{Csc}5x$$

Resolución:

$$L = (2\text{Sen}5x \text{Cos}4x) \text{Csc}5x$$

$$L = 2\text{Cos}4x (\text{Sen}5x \text{Csc}5x)$$

$$L = 2\text{Cos}4x(1)$$

$$L = 2\text{Cos}4x$$

5. Simplifica:

$$N = \frac{\text{Sen}2x - \text{Sen}x}{\text{Cos}2x + \text{Cos}x}$$

6. Calcula «x» si:

$$\text{Sen}80^\circ + x \cdot \text{Cos}50^\circ = \text{Sen}20^\circ$$

7. Calcula:

$$E = \left(\frac{\text{Sen}50^\circ + \text{Cos}50^\circ}{\text{Cos}5^\circ} \right)^4$$

UNMSM

8. Simplifica:

$$M = \frac{\text{Sen}\theta + \text{Sen}2\theta + \text{Sen}3\theta}{\text{Cos}\theta + \text{Cos}2\theta + \text{Cos}3\theta}$$

Resolución:

$$M = \frac{(\text{Sen}3\theta + \text{Sen}\theta) + \text{Sen}2\theta}{(\text{Cos}3\theta + \text{Cos}\theta) + \text{Cos}2\theta}$$

$$M = \frac{(2\text{Sen}2\theta \text{Cos}\theta) + \text{Sen}2\theta}{(2\text{Cos}2\theta \text{Cos}\theta) + \text{Cos}2\theta}$$

$$M = \frac{\text{Sen}2\theta(2\text{Cos}\theta + 1)}{\text{Cos}2\theta(2\text{Cos}\theta + 1)}$$

$$M = \frac{\text{Sen}2\theta}{\text{Cos}2\theta} = \text{Tan}2\theta$$

9. Simplifica:

$$L = \frac{\text{Cos}50^\circ + \text{Cos}30^\circ + \text{Cos}10^\circ}{\text{Sen}50^\circ + \text{Sen}30^\circ + \text{Sen}10^\circ}$$

10. Simplifica:

$$N = \frac{\text{Sen}(3x + y) + \text{Sen}(x + 3y)}{\text{Sen}2x + \text{Sen}2y}$$

11. Pasa a producto:

$$E = \text{Sen}x + \text{Sen}3x + \text{Sen}5x + \text{Sen}7x$$

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12. Reduce:

$$Q = \frac{\text{Cos}15x + \text{Cos}13x + \text{Cos}11x + \text{Cos}9x}{\text{Sen}15x + \text{Sen}13x + \text{Sen}11x + \text{Sen}9x}$$

Resolución:

$$Q = \frac{(\text{Cos}15x + \text{Cos}13x) + (\text{Cos}11x + \text{Cos}9x)}{(\text{Sen}15x + \text{Sen}13x) + (\text{Sen}11x + \text{Sen}9x)}$$

$$Q = \frac{2\text{Cos}14x\text{Cos}x + 2\text{Cos}10x\text{Cos}x}{2\text{Sen}14x\text{Cos}x + 2\text{Sen}x\text{Cos}x}$$

$$Q = \frac{\cancel{2\text{Cos}x}(\text{Cos}14x + \text{Cos}10x)}{\cancel{2\text{Cos}x}(\text{Sen}14x + \text{Sen}10x)}$$

$$Q = \frac{\cancel{2}\text{Cos}12x\cancel{\text{Cos}2x}}{\cancel{2}\text{Sen}12x\cancel{\text{Cos}2x}}$$

$$Q = \frac{\text{Cos}12x}{\text{Sen}12x}$$

$$Q = \text{Cot}12x$$

13. Obtén el valor de:

$$N = \frac{\text{Sen}75^\circ + \text{Sen}65^\circ + \text{Sen}55^\circ + \text{Sen}45^\circ}{\text{Cos}75^\circ + \text{Cos}65^\circ + \text{Cos}55^\circ + \text{Cos}45^\circ}$$

14. Calcula el área del cuadrilátero PQRS.
(OP = OR = m)

