Ch. 9 - Board Problems

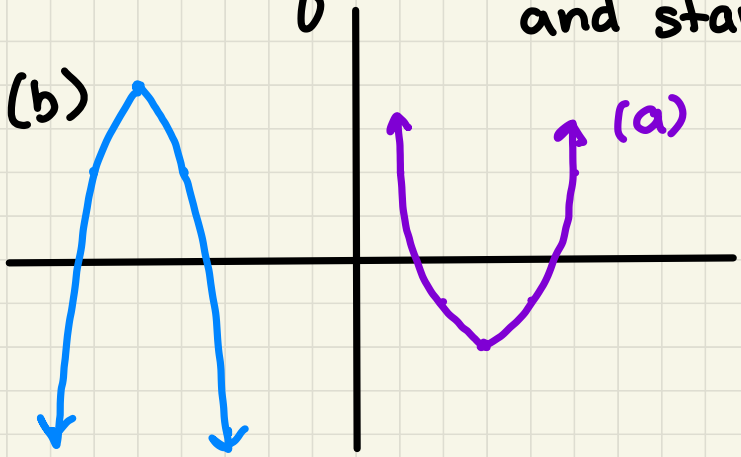
① Prove:

$$\frac{\sin\theta + \cos\theta\sec\theta}{\tan\theta} = \cos\theta(1 + \csc\theta)$$

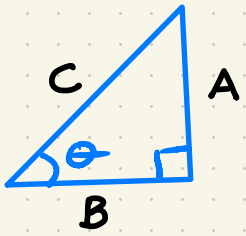
② Find the vertex of:

$$x^2 + 3x + y - 28 = 0$$

③ Write the equation in vertex form and standard form.



Ch. 9 - Proving Trig. Identities



$$A^2 + B^2 = C^2$$

$$\sin^2\theta + \cos^2\theta = 1$$

Rearrange for appropriate use.

$\cos^2\theta =$

$\sin^2\theta =$

$-\sin^2\theta =$

$-\cos^2\theta =$

Ex. 1 **Prove:** $\tan\theta + \cot\theta = \sec\theta \cdot \csc\theta$

First step: change the left side to _____

EX. 2 $\tan^2\alpha + 1 = \sec^2\alpha$

REMEMBER CONJUGATES? FACTOR $x^2 - A^2$ $x^2 - 9$ ( )( ) ( )( )

$$\frac{2x+4}{1+\sqrt{3}}$$

EX 3

SIMILARLY, PROVE: $\dfrac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta} = \dfrac{1 - 2\sin\theta\cos\theta}{1 - 2\sin^2\theta}$

PROVE:

MORE EXAMPLES

① $\dfrac{1+\sin}{\tan} = \cot + \dfrac{1}{\sec}$

② $\sec - \cos = \sin \cdot \tan$

③ $1 + \cot^2 = \csc^2$

④ $\dfrac{1+\tan x}{1-\tan x} = \dfrac{\cot x + 1}{\cot x - 1}$