

Precalculus A

5.1 Fundamental Identities

Day 4

Hw: Assignment #5

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D. Paulson

Write each expression in factored form as an algebraic expression of a single trig function.

$$\sin^2 x + 2 \sin x + 1$$

$$(\sin x + 1)(\sin x + 1)$$

$$\text{Think: } x^2 + 2x + 1 \\ (x+1)(x+1)$$

$$1 - 2 \cos x + \cos^2 x$$

$$\cos^2 x - 2 \cos x + 1 \\ (\cos x - 1)(\cos x - 1)$$

$$\text{Think: } x^2 - 2x + 1 \\ (x-1)(x-1)$$

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D. Paulson

Write each expression in factored form as an algebraic expression of a single trig function.

$$1 - 2 \cos x + (1 - \sin^2 x)$$

$$1 - 2 \cos x + \cos^2 x$$

$$\cos^2 x - 2 \cos x + 1$$

$$(\cos x - 1)(\cos x - 1)$$

Think: $x^2 - 2x + 1$
 $(x-1)(x-1)$

$$\cos x - \sin^2 x - 1$$

$$\uparrow$$

$$1 - \cos^2 x$$

$$\cos x - (1 - \cos^2 x) - 1$$

$$\cos x - 1 + \cos^2 x - 1$$

$$\cos^2 x + \cos x - 2$$

$$(\cos x - 1)(\cos x + 2)$$

Think: $x^2 + x - 2$

$$(x-1)(x+2)$$

Write each expression in factored form as an algebraic expression of a single trig function.

$$\sin x - 2 \cos^2 x + 1$$

$$\sin x - 2(1 - \sin^2 x) + 1$$

$$\sin x - 2 + 2 \sin^2 x + 1$$

$$2 \sin^2 x + \sin x - 1$$

$$(\sin x + 1)(2 \sin x - 1)$$

Think: $2x^2 + x - 1$

$$(2x + 2)(x - 1)$$

$$2x(x+1) - 1(x+1)$$

$$(x+1)(2x-1)$$

$$\cos^2 x + \frac{2}{\sec x} + 1$$

$$\frac{\cos^2 x + 2 \cos x + 1}{(\cos x + 1)(\cos x + 1)}$$

Think: $x^2 + 2x + 1$

$$(x+1)(x+1)$$