Accelerated Pre-Calculus

November & December 2022

Unit 4, Part 2 – Trigonometric Identities & Solving Trig Equations

Monday	Tuesday	Wednesday	Thursday	Friday
Nov 14 4.12 Angle Sum and Difference Identities • Formulas • Evaluating using Unit Circle HW: Practice Worksheet 4.12	15 4.13 Double Angle Identities • Formulas • Evaluating HW: Practice Worksheet 4.13	16 4.14 Review HW: Study	17 4.15 Quiz- Evaluating with Identities	18 4.16 Trig Inverses and Principal Values HW: 4.16 Practice
Thanksgiving Break				
28 4.17 Trig Inverses Cont'd HW: 4.17 Practice	29 4.18 Trig Inverses Review	30 4.19 Trig Inverses with Calculators •Degrees HW: 4.19 Practice	Dec 1 4.20 Trig Inverses with Calculators •Radians HW: 4.20 Practice	2 **Quiz-** Trig Inverses *bring calculator*
5 4.21 Solving Trig Equations • Solutions [0, 2π) vs. ***all values*** • Factoring • Using Pythagorean Identities HW: 4.21 Wksht	6 4.22 Solving Trig Equations cont'd • Using Double Angle Identities HW: 4.22 Wksht	7 4.23 Solving Trig Equations cont'd • Using Angle Sum & Difference Identities HW: 4.23 Wksht	8 4.24 Solving Trig Equations cont'd • Equations with Multiples of the Angle HW: 4.24 Wksht	9 4.25 Review HW: Finish review
12 Review HW: Study	13 **Unit 4B Test**	14 **(Half Day)** Makeup Test & Test Recovery	15 **(Half Day)** Makeup Test & Test Recovery	16 **(Half Day)** Makeup Test & Test Recovery
Winter Vacation – Enjoy your break & holidays!!!				

Trigonometric Identities

Reciprocal Identities:

$\sin\theta = \frac{1}{\csc\theta}$ $\cos\theta = \frac{1}{\sec\theta}$ $\tan\theta = \frac{1}{\cot\theta}$

$\csc\theta = \frac{1}{\sin\theta}$ $\sec\theta = \frac{1}{\cos\theta}$ $\cot\theta = \frac{1}{\tan\theta}$

Quotient Identities:

$\tan\theta = \frac{\sin\theta}{\cos\theta}$

$\cot\theta = \frac{\cos\theta}{\sin\theta}$

Pythagorean Identities:

$\sin^2\theta + \cos^2\theta = 1$ $\tan^2\theta + 1 = \sec^2\theta$ $1 + \cot^2\theta = \csc^2\theta$

Sum & Difference Identities:

$\sin(\alpha \pm \beta) = \sin\alpha\cos\beta \pm \cos\alpha\sin\beta$ $\cos(\alpha \pm \beta) = \cos\alpha\cos\beta \mp \sin\alpha\sin\beta$ $\tan(\alpha \pm \beta) = \frac{\tan\alpha \pm \tan\beta}{1 \mp \tan\alpha\tan\beta}$

Double-Angle Identities:

$\sin 2\theta = 2\sin\theta\cos\theta$ $\cos 2\theta = \cos^2\theta - \sin^2\theta$ $\tan 2\theta = \frac{2\tan\theta}{1-\tan^2\theta}$

$= 2\cos^2\theta - 1$

$= 1 - 2\sin^2\theta$

Half-Angle Identities:

$\sin\frac{\theta}{2} = \pm\sqrt{\frac{1-\cos\theta}{2}}$ $\cos\frac{\theta}{2} = \pm\sqrt{\frac{1+\cos\theta}{2}}$ $\tan\frac{\theta}{2} = \pm\sqrt{\frac{1-\cos\theta}{1+\cos\theta}}$

$= \frac{1-\cos\theta}{\sin\theta} = \frac{\sin\theta}{1+\cos\theta}$