

Accelerated Pre-Calculus

November & December 2021

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

Monday	Tuesday	Wednesday	Thursday	Friday
11/8 4.10 Test Review HW: Finish review	9 4.10 Test Review HW: Study	10 4.11 Unit 4 Part 1 Test- Identities HW: 4.16 Practice	11 4.12 Angle Sum and Difference Identities <ul style="list-style-type: none"> • Formulas • Evaluating using Unit Circle HW: Practice Worksheet 4.12	12 4.13 Double Angle Identities <ul style="list-style-type: none"> • Formulas • Evaluating HW: Practice Worksheet 4.13
15 4.14 Review HW: Study	16 4.15 Quiz- Evaluating with Identities	17 4.16 Trig Inverses and Principal Values HW: 4.16 Practice	18 4.17 Trig Inverses Cont'd HW: 4.17 Practice	19 4.18 Trig Inverses Review

Thanksgiving Break

29 4.19 Trig Inverses with Calculators <ul style="list-style-type: none"> •Degrees HW: 4.19 Practice	30 4.20 Trig Inverses with Calculators <ul style="list-style-type: none"> •Radians HW: 4.20 Practice	Dec 1 Quiz- Trig Inverses *bring calculator*	2 4.21 Solving Trig Equations <ul style="list-style-type: none"> • Solutions $[0, 2\pi)$ vs. <i>all values</i> • Factoring • Using Pythagorean Identities HW: 4.21 Wksht	3 4.22 Solving Trig Equations cont'd <ul style="list-style-type: none"> • Using Double Angle Identities HW: 4.22 Wksht
6 4.23 Solving Trig Equations cont'd <ul style="list-style-type: none"> • Using Angle Sum & Difference Identities HW: 4.23 Wksht	7 4.24 Solving Trig Equations cont'd <ul style="list-style-type: none"> • Equations with Multiples of the Angle HW: 4.24 Wksht	8 4.25 Review HW: Finish review	9 Review HW: Study	10 Unit 4B Test
13 Review for Recovery	14 Final Exams -Recovery for fall test (if needed)	15 Final Exams -Recovery for fall test (if needed)	16 Final Exams -Recovery for fall test (if needed)	17 Final Exams -Recovery for fall test (if needed)

Winter Vacation – Enjoy your break & holidays!!!

Trigonometric Identities

Reciprocal Identities:

$$\begin{array}{lll} \sin \theta = \frac{1}{\csc \theta} & \cos \theta = \frac{1}{\sec \theta} & \tan \theta = \frac{1}{\cot \theta} \\ \csc \theta = \frac{1}{\sin \theta} & \sec \theta = \frac{1}{\cos \theta} & \cot \theta = \frac{1}{\tan \theta} \end{array}$$

Quotient Identities:

$$\begin{array}{l} \tan \theta = \frac{\sin \theta}{\cos \theta} \\ \cot \theta = \frac{\cos \theta}{\sin \theta} \end{array}$$

Pythagorean Identities:

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

Sum & Difference Identities:

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

Double-Angle Identities:

$$\begin{array}{lll} \sin 2\theta = 2 \sin \theta \cos \theta & \cos 2\theta = \cos^2 \theta - \sin^2 \theta & \tan 2\theta = \frac{2 \tan \theta}{1 - \tan^2 \theta} \\ & = 2 \cos^2 \theta - 1 & \\ & = 1 - 2 \sin^2 \theta & \end{array}$$

Half-Angle Identities:

$$\begin{array}{lll} \sin \frac{\theta}{2} = \pm \sqrt{\frac{1 - \cos \theta}{2}} & \cos \frac{\theta}{2} = \pm \sqrt{\frac{1 + \cos \theta}{2}} & \tan \frac{\theta}{2} = \pm \sqrt{\frac{1 - \cos \theta}{1 + \cos \theta}} \\ & & = \frac{1 - \cos \theta}{\sin \theta} = \frac{\sin \theta}{1 + \cos \theta} \end{array}$$

