

Test Prep 3

1. Graph: $2\sin(x + \pi/2) - 1$

2. Graph: $-\cos(2x)$

3. Graph: $\tan(1/2x)$

Identities

4.If $\sin\theta = \frac{3}{4}$ in quadrant 1, find the following

a) $\csc\theta$

b) $\cos\theta$

c) $\tan\theta$

Fill in the chart with all the Pythagorean Identities

5. $(\sin x + \cos x)^2 = 1 + \sin^2 x \times \cot x$

$$6. 2\sec^2 x = \frac{1}{1-\sin x} + \frac{1}{1+\sin x}$$

$$7. \frac{\sec x - 1}{\sec x + 1} + \frac{\cos x - 1}{\cos x + 1}$$

$$8. \sin 2x + \sin x + \cos 2x - 1$$

Sum or Difference of Angles

9. Find $\sin(75^\circ)$ $\sin(A + B) = \sin A \cos B + \cos A \sin B$

10. Find $\sin(30^\circ)$ $\sin(A - B) = \sin A \cos B - \cos A \sin B$

11. Find $\cos(75^\circ)$ $\cos(A + B) = \cos A \cos B - \sin A \sin B$

12. Find $\cos(15^\circ)$ $\cos(A - B) = \cos A \cos B + \sin A \sin B$

13. Find $\sin(2 \times 30^\circ)$

$$\sin(2A) = 2\sin A \cos A$$

14. 8. Find $\frac{1}{2}\cos(22^\circ)$

$$\cos\left(\frac{A}{2}\right) = \pm \sqrt{\frac{1+\cos A}{2}}$$

Solving Trig Equations

15. $\cos 2x \sin 2x = -\cos 2x$

16. $\csc 2x + 1 = 2 \csc x$

$$16. \sqrt{3} \csc 2x - 2 \csc x - 2 \sqrt{3} \csc x + 4 = 0$$

Voltage

$$17. v(t) = 170 \cos(377t + 30^\circ) \quad t = 0.002 \text{ seconds}$$

$$17. \text{ Given that } \cos(s) = 4/6 \text{ in Q4 and } \sin(t) = -4/5 \text{ in Q3 what is } \cos(s + t).$$

Laws of Sine and Cosine

Laws of Sins: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Laws of Cos: $a^2 = b^2 + c^2 - 2bc\cos A$ OR

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

18. Solve the following triangle

$A = 42^\circ$ $a = 12\text{in}$

$B =$ $b =$

$C = 73^\circ$ $c =$

19. Solve the following Triangle

$A =$ $a = 9\text{cm}$

$B =$ $b = 14\text{cm}$

$C = 52^\circ$ $c =$

20. Ambiguous Case

$$A = 40^\circ \quad a = 10\text{in}$$

$$B = \quad b =$$

$$C = \quad c = 13\text{in}$$

21. $\sin(\arccos(1/4) + \arctan\sqrt{3})$

