

WARM UP

After Trig Review

Solve

1. $16^{x+2} - 3 = 5$

2. $\ln(x + 3) - \ln(x + 1) = \ln(x)$

3. Find the value of $\csc \frac{7\pi}{6}$

Solve on the interval $[0, 2\pi)$

4. $\cos x \cot^2 x - \cos x = 0$

5. $2\cos^2 x - 9\cos x = 5$

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Solve


1. $16^{x+2} - 3 = 5$

$$\begin{aligned} 16^{x+2} &= 8 \\ (2^4)^{x+2} &= 2^3 \\ 2^{4x+8} &= 2^3 \\ 4x+8 &= 3 \\ 4x &= -5 \\ x &= -\frac{5}{4} \end{aligned}$$

2. $\ln(x+3) - \ln(x+1) = \ln(x)$

$$\begin{aligned} \ln\left(\frac{x+3}{x+1}\right) - \ln(x) \\ \Rightarrow \frac{x+3}{x+1} = x(x+1) \\ x+3 &= x^2+x \\ \sqrt{3} &= x^2 \\ \pm\sqrt{3} &= x \\ \boxed{x = \sqrt{3}} \end{aligned}$$

3. Find the value of $\csc \frac{7\pi}{6}$




$$\frac{2}{-1} = -2$$

Solve on the interval $[0, 2\pi)$

4. $\cos x \cot^2 x - \cos x = 0$

$$\begin{aligned} \cos x (\cot^2 x - 1) &= 0 \\ \cos x = 0 \quad \sqrt{\cot^2 x} &= 1 \end{aligned}$$

$$\begin{aligned} X &= \pi/2, 3\pi/2 \\ \cot x &= \pm 1 \\ X &= \pi/4, 3\pi/4, 5\pi/4, 7\pi/4 \end{aligned}$$


5. $2\cos^2 x - 9\cos x = 5$

$$\begin{aligned} 2\cos^2 x - 9\cos x - 5 &= 0 \\ (2\cos x + 1)(\cos x - 5) &= 0 \end{aligned}$$

$$\begin{aligned} 2\cos x + 1 = 0 \quad \cos x - 5 = 0 \\ \cos x = -\frac{1}{2} \quad \cos x = 5 \end{aligned}$$

$$X = \frac{2\pi}{3}, \frac{4\pi}{3}$$