MATH 242 - Quiz 3 REMIX V2

04/04/2024
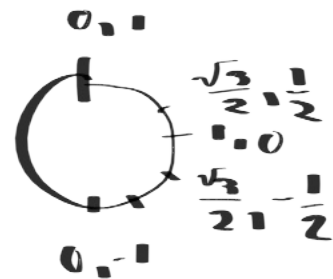
1. [**4 pts**] True or False?

    (a) If $\sin(2x) = \frac{1}{2}$ then $\sin(x) = \frac{1}{4}$ or $\sin(x) = -\frac{1}{4}$

    False

    (b) If $\cos(x) = -\frac{1}{2}$ then $x = -\frac{\pi}{6}$

    False

    (c) If $\sin(x) = \frac{1}{2}$ then $\sec(x) = 2$

    False

    (d) If $\sin^{-1}(x) = \frac{\pi}{3}$ then $x = \frac{\sqrt{3}}{2}$

    True

2. [**3 pts**] Evaluate the limit:
$$\lim_{x \to 0^+} \frac{\sqrt[3]{x+8}-2}{x^2}$$

$$\lim_{x \to 0^+} \frac{\overline{\dfrac{1}{3\sqrt[3]{(x+8)^2}}}}{2x} = \frac{\frac{1}{12}}{0} = \boxed{\infty}$$

3. [**3 pts**] Evaluate the limit:
$$\lim_{x \to 1^+} \frac{e^{2x}-e^{x+1}}{x-1}$$

$$\lim_{x \to 1^+} \quad \frac{2e^{2x}-e^{x+1}}{1}$$

$$= 2e^2 - e^2 = \boxed{e^2}$$