

NO CALCULATORS CLOSED BOOK CLOSED NOTES

TIME LIMIT: 15 MINUTES

1. Find the exact value of $\text{Sec}\left(\frac{2\pi}{3}\right)$.

2. Write the Pythagorean Identity which involves a Cotangent term. Make sure to use the proper notation.

3. Find the domain of $f(x) = \sqrt{3x+7}$. Express the exact answer in interval notation.4. Factor completely: $2(x+1)^3 - 8(x+1)$

5. Find the exact value of $\text{Sin}^2\left(\frac{\pi}{3}\right) + \text{Cos}^2\left(\frac{\pi}{4}\right)$.

6. Find the domain of $f(x) = \frac{x+3}{x^2-2x-8}$. Express answer in the interval notation.7. Find the average rate of change of the function $f(x) = -x^2$ from $x = -2$ to $x = 1$. Provide exact answer.8. Find the exact value of $\text{Sec}^2(40^\circ) - \text{Tan}^2(40^\circ)$.9. Find all values of θ given that $2\text{Sin}\theta + 1 = 0$ with $0^\circ \leq \theta \leq 360^\circ$.

10. Solve for x : $-x^2(1-x^2)^{-1/2} + (1-x^2)^{1/2} = 0$

Answers:

1. -2

2. $\operatorname{Cosec}^2 \theta = 1 + \operatorname{Cot}^2 \theta$

3. $[-7/3, \infty)$

4. $2(x-1)(x+1)(x+3)$

5. $5/4$

6. $(-\infty, -2) \cup (-2, 4) \cup (4, \infty)$

7. 1

8. 1

9. $210^\circ, 330^\circ$

10. $-1/\sqrt{2}, 1/\sqrt{2}$