

Precalculus Exam # 1 Version 1

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1. (30) Suppose $f(x) = 2x^2 + 8x - 10$.

(a) Find the Equation of the axis of this parabola.

(b) Find the vertex.

(c) Find the roots of $f(x) = 0$.

(d) Draw the graph of $f(x)$.

(e) Find the interval(s) where $f(x) \leq 0$ (by looking at the graph).

(f) Draw the graph of $-f(x)$.

2. (25) Suppose $\cos x = -\frac{1}{4}$ and x is in quadrant III.

(a) compute $\sin x$;

(b) compute $\tan x$;

(c) compute $\sec x$;

(d) Compute $\sec^2 x - \tan^2 x$;

(e) compute $\csc x$ and $\csc^2 x - 1$;

3. (25) Suppose $f(x) = x^2 - 4x$ ($x \leq 2$).

(a) Find the vertex of the graph of $f(x)$;

(b) Draw a graph of $f(x)$ only for $x \leq 2$;

(c) Is $f(x)$ a one-to-one function on $x \leq 2$?

(d) If it is not, explain why; if it is, find the inverse $f^{-1}(x)$.

(e) What is the range of $f(x)$?

4. (10) Find the domain of $\frac{1}{\sqrt{9-x^2}}$.

5. (10) Suppose $\theta_{deg} = 405^\circ$. Compute the radian of θ , θ_{rad} . Which quadrant is θ in ?