


Quick Quiz for AP* Preparation: Sections 1.1–1.3

 You may use graphing calculator to solve the following problems.

1. **Multiple Choice** Which of the following gives an equation for the line through $(3, -1)$ and parallel to the line $y = -2x + 1$?

(A) $y = \frac{1}{2}x + \frac{7}{2}$ (B) $y = \frac{1}{2}x - \frac{5}{2}$ (C) $y = -2x + 5$

(D) $y = -2x - 7$ (E) $y = -2x + 1$

2. **Multiple Choice** If $f(x) = x^2 + 1$ and $g(x) = 2x - 1$, which of the following gives $f \circ g(2)$?

(A) 2 (B) 5 (C) 9 (D) 10 (E) 15

3. **Multiple Choice** The half-life of a certain radioactive substance is 8 hrs. There are 5 grams present initially. Which of the following gives the best approximation when there will be 1 gram remaining?

(A) 2 (B) 10 (C) 15 (D) 16 (E) 19

4. **Free Response** Let $f(x) = e^{-x} - 2$.

- (a) Find the domain of f . (b) Find the range of f .
(c) Find the zeros of f .

Quick Quiz for AP* Preparation: Sections 1.4–1.6

 You should solve the following problems without using a graphing calculator.

1. **Multiple Choice** Which of the following is the domain of $f(x) = -\log_2(x + 3)$?

(A) $(-\infty, \infty)$ (B) $(-\infty, 3)$ (C) $(-3, \infty)$

(D) $[-3, \infty)$ (E) $(-\infty, 3]$

2. **Multiple Choice** Which of the following is the range of $f(x) = 5 \cos(x + \pi) + 3$?

(A) $(-\infty, \infty)$ (B) $[2, 4]$ (C) $[-8, 2]$

(D) $[-2, 8]$ (E) $\left[-\frac{2}{5}, \frac{8}{5}\right]$

3. **Multiple Choice** Which of the following gives the solution of

$\tan x = -1$ in $\pi < x < \frac{3\pi}{2}$?

(A) $-\frac{\pi}{4}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{3}$ (D) $\frac{3\pi}{4}$ (E) $\frac{5\pi}{4}$

4. **Free Response** Let $f(x) = 5x - 3$.

- (a) Find the inverse g of f .
(b) Compute $f \circ g(x)$. Show your work.
(c) Compute $g \circ f(x)$. Show your work.

AP* Examination Preparation

You may use a graphing calculator to solve the following problems.

68. Consider the point $P(-2, 1)$ and the line $L: x + y = 2$.

- (a) Find the slope of L .
(b) Write an equation for the line through P and parallel to L .
(c) Write an equation for the line through P and perpendicular to L .
(d) What is the x -intercept of L ?

69. Let $f(x) = 1 - \ln(x - 2)$.

- (a) What is the domain of f ? (b) What is the range of f ?
(c) What are the x -intercepts of the graph of f ?
(d) Find f^{-1} . (e) Confirm your answer algebraically in part (d).

70. Let $f(x) = 1 - 3 \cos(2x)$.

- (a) What is the domain of f ? (b) What is the range of f ?
(c) What is the period of f ?
(d) Is f an even function, odd function, or neither?
(e) Find all the zeros of f in $\pi/2 \leq x \leq \pi$.