

Practice MC TEST: PCPAP Chapter 1

NO CALCULATOR

Part I: MULTIPLE CHOICE (USE CAPITAL LETTERS)

Find the domain of the given function.

1) $f(x) = \frac{\sqrt{x+9}}{(x+4)(x-8)}$

- A) $[-9, -4) \cup (-4, 8) \cup (8, \infty)$ B) $(-\infty, -9) \cup (-9, -4) \cup (-4, 8) \cup (8, \infty)$
 C) All real numbers D) $(0, \infty)$

1) _____

Find the range of the function.

2) $f(x) = (x+1)^2 + 7$

- A) $(7, \infty)$ B) $(-\infty, \infty)$ C) $[7, \infty)$ D) $(-7, \infty)$

2) _____

3) $f(x) = 3 + \sqrt{8-x}$

- A) $(-\infty, 3]$ B) $[3, \infty)$ C) $[8, \infty)$ D) $(-\infty, \infty)$

3) _____

4) $f(x) = \frac{7}{12-x}$

- A) $(-\infty, 0) \cup (0, \infty)$ B) $(-\infty, 12) \cup (12, \infty)$
 C) $(0, \infty)$ D) $(-\infty, \infty)$

4) _____

Identify the open x-intervals on which the function is increasing, decreasing, or constant.

5) $g(x) = 3 - (x-7)^2$

- A) Increasing: $(3, \infty)$; decreasing: $(-\infty, 3)$ B) Increasing: $(-\infty, 3)$; decreasing: $(3, \infty)$
 C) Increasing: $(-\infty, 7)$; decreasing: $(7, \infty)$ D) Increasing: $(-\infty, -7)$; decreasing: $(-7, \infty)$

5) _____

Determine algebraically whether the function is even, odd, or neither even nor odd.

6) $f(x) = 13\sqrt[3]{x}$

- A) Neither B) Even C) Odd

6) _____

Find the domain and range from the graph.

7) $g(x) = \ln(x-7)$

- A) Domain: $[7, \infty)$; range: $(-\infty, \infty)$ B) Domain: $(-\infty, \infty)$; range: $(-\infty, \infty)$
 C) Domain: $(7, \infty)$; range: $(-\infty, \infty)$ D) Domain: $(-\infty, \infty)$; range: $(7, \infty)$

7) _____

8) $k(x) = e^x + 1$

- A) Domain: $(-\infty, 1)$; range: $(-\infty, \infty)$ B) Domain: $(-\infty, \infty)$; range: $[1, \infty)$
 C) Domain: $(-\infty, \infty)$; range: $(1, \infty)$ D) Domain: $(1, \infty)$; range: $(-\infty, \infty)$

8) _____

Perform the requested operation or operations.

9) $f(x) = \frac{x-6}{7}$; $g(x) = 7x+6$, find $g(f(x))$.

- A) $g(f(x)) = x + 12$ B) $g(f(x)) = x$ C) $g(f(x)) = 7x + 36$ D) $g(f(x)) = x - \frac{6}{7}$

9) _____

10) $f(x) = 4x^2 + 2x + 3$; $g(x) = 2x - 6$, find $g(f(x))$.

A) $g(f(x)) = 4x^2 + 4x + 0$

C) $g(f(x)) = 8x^2 + 4x + 12$

B) $g(f(x)) = 4x^2 + 2x - 3$

D) $g(f(x)) = 8x^2 + 4x + 0$

10) _____

Find functions f and g so that $h(x) = f(g(x))$.

11) $y = \frac{1}{x^2 - 6}$

A) $f(x) = 1/x^2$, $g(x) = x - 6$

C) $f(x) = 1/x^2$, $g(x) = -1/6$

B) $f(x) = 1/6$, $g(x) = x^2 - 6$

D) $f(x) = 1/x$, $g(x) = x^2 - 6$

11) _____

12) $y = \frac{8}{\sqrt{10x + 6}}$

A) $f(x) = \sqrt{10x + 6}$, $g(x) = 8$

C) $f(x) = 8$, $g(x) = \sqrt{10 + 6}$

B) $f(x) = 8/x$, $g(x) = 10x + 6$

D) $f(x) = 8/\sqrt{x}$, $g(x) = 10x + 6$

12) _____

Find the inverse of the function.

13) $f(x) = \frac{-2x - 7}{6x + 8}$

A) Not a one-to-one function

C) $f^{-1}(x) = \frac{-8x - 7}{6x + 2}$

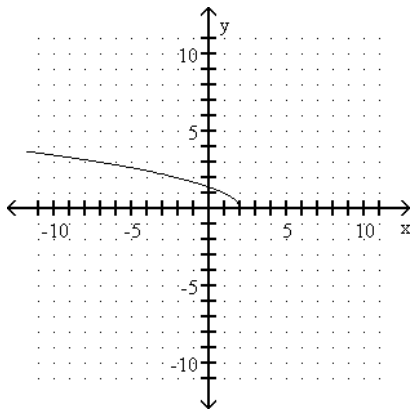
B) $f^{-1}(x) = \frac{6x + 2}{-8x - 7}$

D) $f^{-1}(x) = \frac{-2x - 7}{6x + 8}$

13) _____

The graph is that of a function $y = f(x)$ that can be obtained by transforming the graph of $y = \sqrt{x}$. Write a formula for the function f .

14)



A) $f(x) = \sqrt{-x + 2}$

B) $f(x) = \sqrt{-x} + 2$

C) $f(x) = -\sqrt{x + 2}$

D) $f(x) = -\sqrt{x} + 2$

14) _____

Perform the requested operation or operations. Find the domain of each.

15) $f(x) = \sqrt{x}$; $g(x) = 5x - 6$

Find f/g .

A) $(f/g)(x) = \frac{\sqrt{x}}{5x - 6}$; domain $\{x | x \geq 0, x \neq \frac{6}{5}\}$

B) $(f/g)(x) = \frac{5x - 6}{\sqrt{x}}$; domain $\{x | x \geq 0\}$

C) $(f/g)(x) = \frac{\sqrt{x}}{5x - 6}$; domain $\{x | x \neq \frac{6}{5}\}$

D) $(f/g)(x) = \frac{\sqrt{x}}{5x - 6}$; domain $\{x | x \neq 0\}$

15) _____