Math 1314 - Practice Exam 2 - Fall 2019

MULTIPLE CHOICE SECTION. (5 pts each) Choose the correct answer for each question. Select one choice only. No work will be graded. No partial credit.

Answer the question.

1) How can the graph of $f(x) = -\sqrt{x+5}$ be obtained from the graph of $y = \sqrt{x}$? 1) _____

A) Shift it horizontally 5 units to the right. Reflect it across the x–axis.
B) Shift it horizontally –5 units to the left. Reflect it across the x–axis.
C) Shift it horizontally 5 units to the left. Reflect it across the x–axis.
D) Shift it horizontally 5 units to the left. Reflect it across the y–axis.

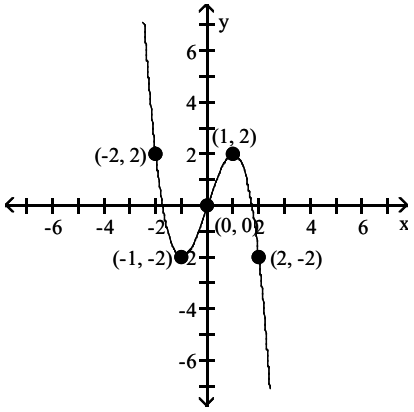
The given point is on the graph of y = f(x). Find a point on the graph of y = g(x).

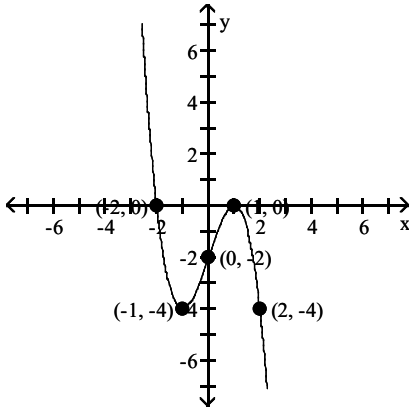
2) $g(x) = f(x - 1) + 3$; (4, 13) 2) _____

A) (5, 16) B) (5, 10) C) (14, 16) D) (14, 10)

Given the graph of the function $f(x) = -x^3 + 3x$; find a formula for g(x) .

3) $f(x) = -x^3 + 3x$ $g(x) =$ 3) _____





A) $g(x) = -(x + 2)^3 + 3(x + 2)$ B) $g(x) = -x^3 + 3x + 2$
C) $g(x) = -(x - 2)^3 + 3(x - 2)$ D) $g(x) = -x^3 + 3x - 2$

Find the domain of the function.

4) $h(x) = \dfrac{x - 2}{x^3 - 36x}$ 4) _____

A) $(-\infty, 2) \cup (2, \infty)$ B) $(-\infty, \infty)$
C) $(-\infty, -6) \cup (-6, 0) \cup (0, 6) \cup (6, \infty)$ D) $(-\infty, 0) \cup (0, \infty)$

Find the given value.

5) Find $(f - g)(1)$ when $f(x) = 2x^2 + 6$ and $g(x) = x + 7$. 5) _____

A) 2 B) 14 C) –9 D) 0

Given functions f and g, perform the indicated operations.

6) $f(x) = 9x - 3$, $g(x) = 3x + 4$ 6) _____

Find fg.

A) $27x^2 - 12$ B) $12x^2 + 27x + 1$ C) $27x^2 + 27x - 12$ D) $27x^2 - 5x - 12$

For the pair of functions, find the indicated domain.

7) $f(x) = \sqrt{6 - x}$; $g(x) = \sqrt{x - 2}$ 7) _____

Find the domain of fg.

A) [2, 6] B) $(-\infty, 2) \cup (6, \infty)$ C) $(-\infty, 12) \cup (12, \infty)$ D) (2, 6)

For the given functions f and g , find the indicated composition.

8) $f(x) = -2x + 5$, $g(x) = 3x + 2$ 8) _____

$(g \circ f)(x)$

A) $6x + 17$ B) $-6x - 13$ C) $-6x + 17$ D) $-6x + 9$

Evaluate the expression.

9) $(f \circ g)(-2)$ when $f(x) = -2x - 5$ and $g(x) = -4x^2 - 7x - 9$. 9) _____

A) -31 B) -6 C) 17 D) 2

Find the inverse of the one–to–one function.

10) $f(x) = (x - 5)^3$ 10) _____

A) $f^{-1}(x) = \sqrt[3]{x} + 5$ B) $f^{-1}(x) = \sqrt{x} + 5$

C) $f^{-1}(x) = \sqrt[3]{x} - 5$ D) $f^{-1}(x) = \sqrt[3]{x} + 125$

Find the inverse of the function.

11) $f(x) = \frac{1}{5}x + 7$ 11) _____

A) $f^{-1}(x) = 5x + 35$ B) $f^{-1}(x) = \frac{1}{5}x - 7$ C) $f^{-1}(x) = \frac{1}{7}x + 5$ D) $f^{-1}(x) = 5x - 35$

Determine which two functions are inverses of each other.

12) $f(x) = \frac{x - 8}{2}$ $g(x) = 2x - 8$ $h(x) = \frac{x + 8}{2}$ 12) _____

A) g(x) and h(x) B) f(x) and g(x) C) None D) f(x) and h(x)

SHORT ANSWER SECTION. (5 pts each) WRITE THE ANSWER IN THE BOX. Write the FINAL ANSWER ONLY (do NOT write any work). No work will be graded. No partial credit.

Write an equation for a function that has a graph with the given characteristics.

13) The shape of $y = |x|$ is vertically stretched by a factor of 3.9. This graph is then reflected across the x–axis. Finally, the graph is shifted 0.59 units downward. 13) _____

The given point is on the graph of y = f(x). Find a point on the graph of y = g(x).

14) $g(x) = f(x + 1)$; (7, 18) 14) _____

Find the domain of the function.

15) $\frac{x}{\sqrt{x - 3}}$ 15) _____

Find the requested function value.

16) $f(x) = \frac{x - 5}{2}$, $g(x) = 7x + 2$ 16) _____

Find $(g \circ f)(15)$.

ESSAY. (10 pts each) Show all work to justify your answer. Answer with no work or insufficient work will receive no credit. Partial credit may be given.

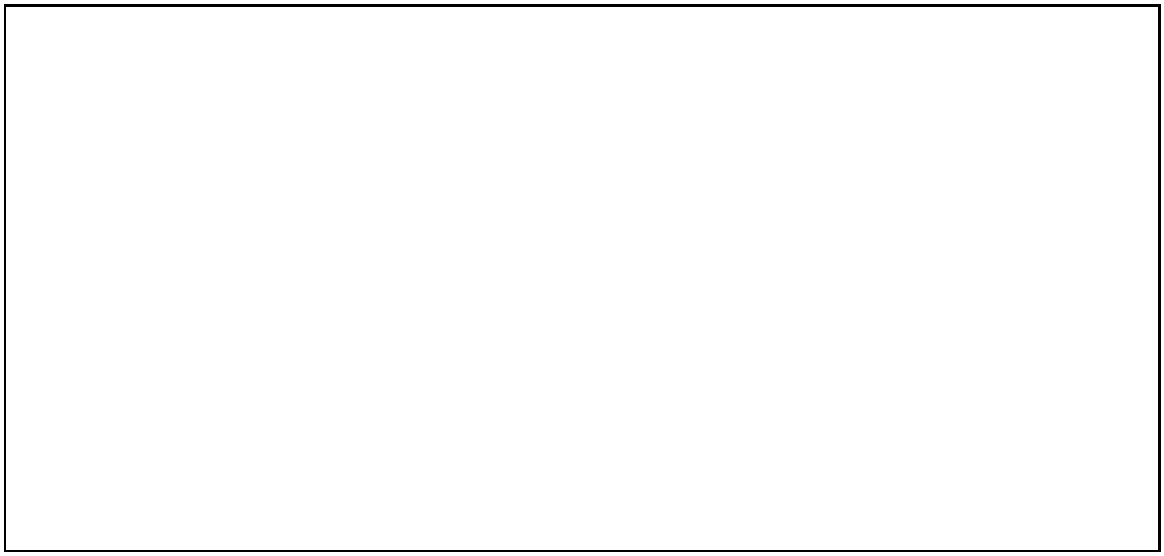
For the pair of functions, find the indicated composition.

17) $f(x) = 4x^2 + 3x + 5$, $g(x) = 3x - 3$

Find $(g \circ f)(x)$.

Find the inverse of the one–to–one function.

18) $f(x) = \frac{5}{7x - 1}$



Answer Key
Testname: 1314-PRACTICETEST2-FALL19

1) C
2) A
3) D
4) C
5) D
6) C
7) A
8) C
9) C
10) A
11) D
12) A
13) $f(x) = -3.9|x| - 0.59$
14) (6, 18)
15) $(3, \infty)$
16) 37
17) $12x^2 + 9x + 12$
18) $f^{-1}(x) = \frac{5}{7x} + \frac{1}{7}$