Math 1314 - Practice Exam 1 - Spring 19

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.

Determine whether the relation is a function.

1) {(–4, –1), (–3, 7), (2, –8), (2, –9)} 1) _____

A) Function B) Not a function

Evaluate the function at the given value of the independent variable and simplify.

2) $f(x) = 3x^2 - 4x + 2$; $f(x - 1)$ 2) _____

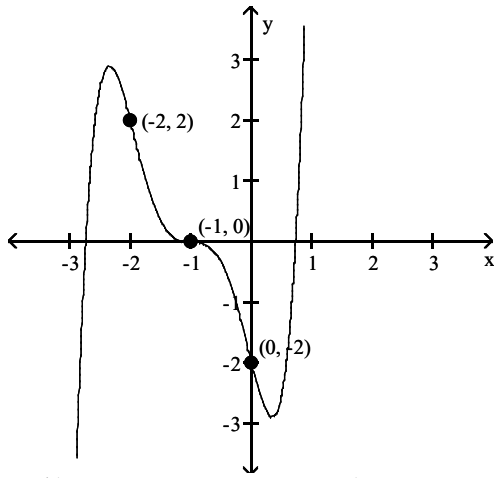
A) $3x^2 - 10x + 1$ B) $3x^2 + 2x + 1$ C) $3x^2 - 10x + 9$ D) $-10x^2 + 3x + 9$

Evaluate as requested.

3) Given that $f(x) = \frac{x}{7 - x}$, find $f\left(-\frac{4}{5}\right)$. 3) _____

A) $-\frac{39}{4}$ B) $\frac{39}{4}$ C) $\frac{4}{39}$ D) $-\frac{4}{39}$

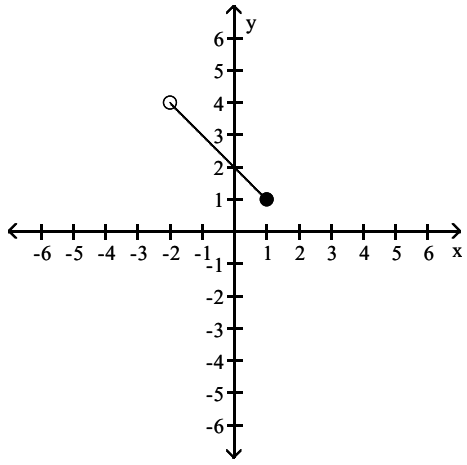
4) A graph of a function g is shown below. Find g(0). 4) _____



A) –2 B) 1 C) 2 D) –1

Find the domain and range of the function represented in the graph.

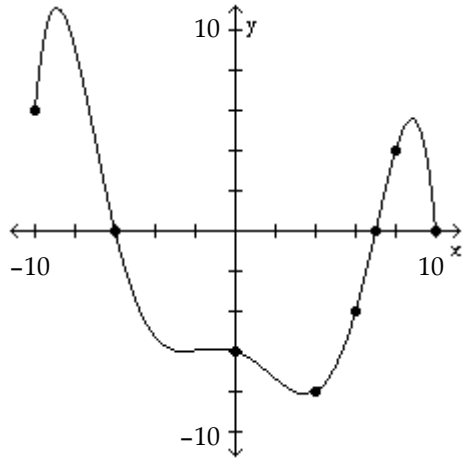
5) 5) _____



A) Domain: [–2, 1]; Range: [1, 4]
B) Domain: [–2, 1); Range: [–1, 6)
C) Domain: (–1, 2]; Range: [2, 4)
D) Domain: (–2, 1]; Range: [1, 4)

The graph of a function f is given. Use the graph to answer the question.

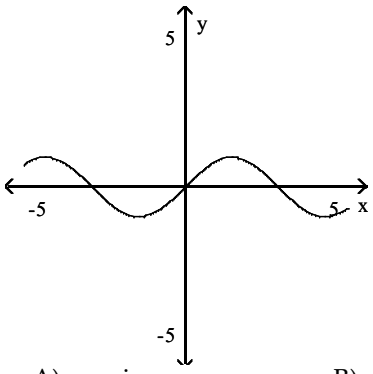
6) For what numbers x is f(x) = 0? 6) _____



A) –6
B) –6, 7, 10
C) (–6, 7)
D) (–10, –6), (7, 10)

Determine if the graph is symmetric with respect to x–axis, y–axis, and/or the origin.

7) 7) _____



A) y–axis
B) x–axis
C) origin
D) no symmetry

Solve the equation using the quadratic formula.

8) $4x^2 = -6x - 1$ 8) _____

A) $\left\{\frac{-3-\sqrt{5}}{4}, \frac{-3+\sqrt{5}}{4}\right\}$

B) $\left\{\frac{-6-\sqrt{5}}{4}, \frac{-6+\sqrt{5}}{4}\right\}$

C) $\left\{\frac{-3-\sqrt{13}}{4}, \frac{-3+\sqrt{13}}{4}\right\}$

D) $\left\{\frac{-3-\sqrt{5}}{8}, \frac{-3+\sqrt{5}}{8}\right\}$

Determine algebraically whether the graph is symmetric with respect to the x–axis, the y–axis, and the origin.

9) $x^2 + xy^2 = 5$ 9) _____

A) x–axis only

B) x–axis, y–axis, origin

C) Origin only

D) y–axis only

Find the point that is symmetric to the given point with respect to the requested axis.

10) Symmetric with respect to the y–axis 10) _____

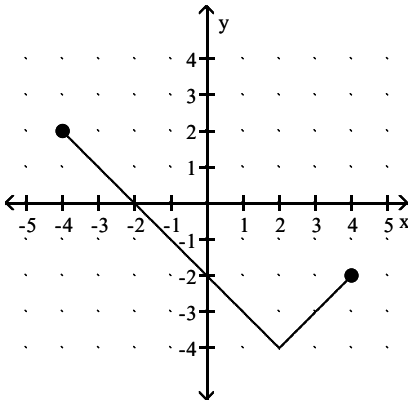
(1.5, 1.75)

A) (1.75, 1.5) B) (–1.5, –1.75) C) (1.5, –1.5) D) (–1.5, 1.75)

SHORT ANSWER SECTION. (5 pts each) Write the answer in the box. Write the FINAL ANSWER ONLY. No work will be graded. No partial credit.

For the function represented in the graph, determine the domain or range, as requested.

11) Find the domain. 11) _____



The Domain in Interval Notation is:(ANSWER ONLY)

Solve the quaratic equation.

12) $2 - 10x = (3x - 7)(x + 1)$ 12) _____

The solution set is:(ANSWER ONLY)

Solve the equation.

13) $(4x + 3)^2 = 7$ 13) _____

The solution set is:(ANSWER ONLY)

Determine the constant that should be added to the binomial so that it becomes a perfect square trinomial. Then write and factor the trinomial.

14) $x^2 - 12x$ 14) _____

Answer: (ANSWER ONLY)

Solve the equation.

15) $(x^2 + 6x + 9)^{3/4} - 10 = 17$ 15) _____

The solution set is (ANSWER ONLY)

Solve the polynomial equation by factoring and then using the zero product principle.

16) $5x^3 + 3x^2 = 80x + 48$ 16) _____

The solution set is (ANSWER ONLY):

Find and simplify the difference quotient $\frac{f(x+h)-f(x)}{h}$, $h \neq 0$ for the given function.

17) $f(x) = x^2 + 7x + 9$ 17) _____

ANSWER ONLY

Solve the equation by making an appropriate substitution.

18) $x^{2/3} + 3x^{1/3} - 4 = 0$ 18) _____

The solution set is (ANSWER ONLY):

ESSAY. (5 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.

Solve the polynomial equation by factoring. SHOW ALL WORK

19) $20x^3 + 100x^2 + 120x = 0$

Solution (SHOW ALL WORK):

Solve the radical equation, and check solutions.

20) $x - \sqrt{3x - 2} = 4$

Solution (SHOW ALL WORK)

Answer Key
Testname: 1314-PRACTICETEST1-SPR19

1) B
2) C
3) D
4) A
5) D
6) B
7) C
8) A
9) A
10) D
11) [–4, 4]
12) {–3, 1}
13) $\left\{\frac{-3-\sqrt{7}}{4}, \frac{-3+\sqrt{7}}{4}\right\}$
14) 36; $x^2 - 12x + 36 = (x - 6)^2$
15) {–12, 6}
16) $\left\{-4, -\frac{3}{5}, 4\right\}$
17) 2x + h + 7
18) {–64, 1}
19) {0, –2, –3}
20) {9}