Math 1314 - Practice 1 - Spring 2020

Instructor: Dr. Vinh Dang - LSC - North Harris

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.

Solve the equation by the square root property.

1) $(5x - 7)^2 = 12$ 1) _____

A) $\left\{\frac{7 - 2\sqrt{3}}{5}, \frac{7 + 2\sqrt{3}}{5}\right\}$ B) $\{-2\sqrt{5}, 2\sqrt{5}\}$

C) $\left\{-1, \frac{19}{5}\right\}$ D) $\left\{\frac{-7 - 2\sqrt{3}}{5}, \frac{-7 + 2\sqrt{3}}{5}\right\}$

Solve the equation using the quadratic formula.

2) $2x^2 = -8x - 5$ 2) _____

A) $\left\{\frac{-8 - \sqrt{6}}{2}, \frac{-8 + \sqrt{6}}{2}\right\}$ B) $\left\{\frac{-4 - \sqrt{26}}{2}, \frac{-4 + \sqrt{26}}{2}\right\}$

C) $\left\{\frac{-4 - \sqrt{6}}{4}, \frac{-4 + \sqrt{6}}{4}\right\}$ D) $\left\{\frac{-4 - \sqrt{6}}{2}, \frac{-4 + \sqrt{6}}{2}\right\}$

Solve.

3) $4x^2 = 52$ 3) _____

A) 26 B) $\pm\sqrt{13}$ C) 14 D) ± 13

Solve the polynomial equation by factoring.

4) $2x^3 + 5x^2 = 8x + 20$ 4) _____

A) $\{-2, 2\}$ B) $\left\{-2, -\frac{5}{2}, 2\right\}$ C) $\left\{-\frac{5}{2}, 2\right\}$ D) $\left\{-\frac{5}{2}, 0\right\}$

Solve the radical equation, and check all proposed solutions.

5) $\sqrt{3x + 18} = x$ 5) _____

A) $\{-9\}$ B) $\varnothing$ C) $\{6\}$ D) $\{-3, 6\}$

Solve the equation by making an appropriate substitution.

6) $(x - 5)^2 + 4(x - 5) - 5 = 0$ 6) _____

A) $\{-6, 0\}$ B) $\{-10, -4\}$ C) $\{4, 10\}$ D) $\{0, 6\}$

Determine whether the relation is a function.

7) $\{(1, 5), (2, 3), (5, -3), (7, -3), (11, 7)\}$ 7) _____

A) Not a function B) Function

Evaluate as requested.

8) Given that $f(x) = x^2 + 2x - 5$, find $f(-4)$. 8) _____

A) 3 B) 29 C) 13 D) 19

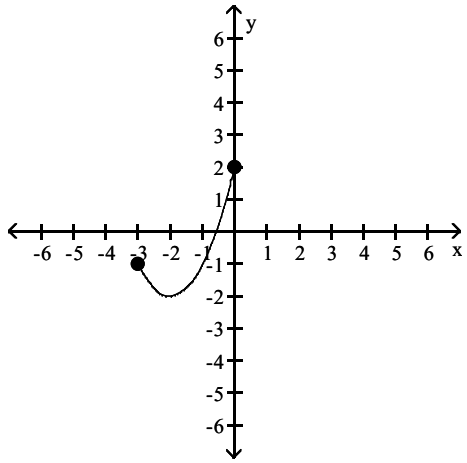
Evaluate the function at the given value of the independent variable and simplify.

9) $f(x) = 2x^2 - 5x - 4$; $f(x - 1)$ 9) _____

A) $2x^2 - 9x + 3$ B) $2x^2 - 9x - 7$ C) $-9x^2 + 2x + 3$ D) $2x^2 - 13x - 7$

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

10) 10) _____



A) Domain: [−2, 2]; Range: [−3, 0] B) Domain: (−∞, 2]; Range: [0, 3]

C) Domain: [0, 3]; Range: (−∞, 2] D) Domain: [−3, 0]; Range: [−2, 2]

For the piecewise function, find the specified function value.

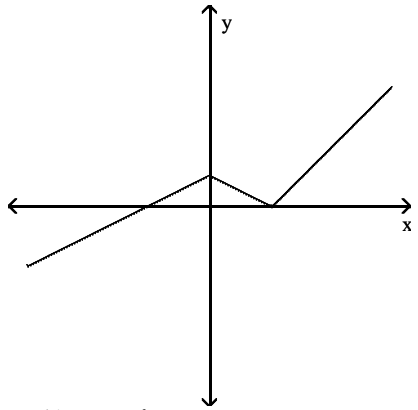
11) $f(x) = \begin{cases} 9x + 1, & \text{for } x < 1, \\ 3x, & \text{for } 3 \le x \le 7, \\ 3 - 6x, & \text{for } x > 7 \end{cases}$ 11) _____

$f(3)$

A) 10 B) 43 C) 9 D) −15

Use the vertical line test to determine whether or not the graph is a graph in which y is a function of x.

12) 12) _____



A) not a function B) function

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.

Solve the equation by factoring.

13) $2x^2 - 15x = 8$ 13) _____

Write ANSWER (Solution Set) ONLY:

Solve the equation by making an appropriate substitution.

14) $x^4 - 15x^2 + 54 = 0$ 14) _____

Write ANSWER (Solution Set) ONLY:

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

15) $f(x) = x^2 - 3$; $f(x - 4)$ 15) _____

Write ANSWER ONLY:

Determine whether the given function is even, odd, or neither.

16) $f(x) = x^3 - x^2$ 16) _____

Write ANSWER ONLY:

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.

Solve the polynomial equation by factoring.

17) $5x^4 - 500x^2 = 0$

SHOW ALL WORK:

Find the real solutions of the equation.

18) $\sqrt{x^2 - 5x + 36} = x + 1$

SHOW ALL WORK:

Answer Key
Testname: 1314-PRACTICETEST1-SPR20

1) A
2) D
3) B
4) B
5) C
6) D
7) B
8) A
9) A
10) D
11) C
12) B
13) $\left\{-\frac{1}{2}, 8\right\}$
14) $\{-3, 3, -\sqrt{6}, \sqrt{6}\}$
15) $x^2 - 8x + 13$
16) Neither
17) {–10, 0, 10}
18) {5}