

Exam #1, ver A

February 5, 2018

Name _____

- You will be told when to begin the work and when to terminate work on the examination. You must stop when instructed. Points may be deducted in case of violations.
- Please show your work to support your answers that require calculations. Correct but unsupported answers may not be given full credit.
- The use of a cell phone or other electronic communication devices during the examination is not allowed. The exam will be canceled and a grade of “0” will be assigned to anyone who uses a cell phone during the examination or if one is found within hands reach.
- Calculators are not allowed on this exam.
- The exam consists of two parts. Part I contains 5 multiple choice questions worth five points each. Part II contains four open ended questions worth 15 points each if not stated otherwise.

Part I

Choose your answer from five available choices. No partial credit will be given for wrong answers.

1. Simplify $(x - 2)(x + 2) - x(x + 1)$

- (a) $4 + x$
- (b) $-4 - x$
- (c) $4 - x$
- (d) $x^2 - 4x + 4 - x^2 - x$
- (e) None of the above

2. Simplify and express the result in the standard form, $a + bi$.

$$(2i + 1)^2$$

- (a) -3
- (b) $5 + 4i$
- (c) $-3 + 4i$
- (d) $4i^2 + 4i + 1$
- (e) None of the above

3. Find the solution set for the equation

$$2x^2 + 7x = -3$$

- (a) $\{-3, -0.5\}$
- (b) $\{-0.5, 3\}$
- (c) $\{3\}$
- (d) The solution set is empty.
- (e) None of the above

4. Find the standard form equation of the circle given by

$$x^2 + y^2 + 6x - 2y + 6 = 0$$

(a) $(x + 6)^2 + (y - 2)^2 = 6^2$

(b) $(x + 3)^2 + (y - 1)^2 = 4^2$

(c) $(x + 3)^2 + (y + 1)^2 = 4^2$

(d) $(x + 3)^2 + (y - 1)^2 = 2^2$

(e) None of the above

5. Select two lines that are **parallel**.

(a) $y = 2x - 1$

(b) $y = -2x - 1$

(c) $y = 2(x - 1)$

(d) $y = -\frac{1}{2}x - 1$

Part II

6. Find the line connecting the points $(-2, 3)$ and $(2, 1)$ and write the equation in

(a) slope-intercept form

(b) general form

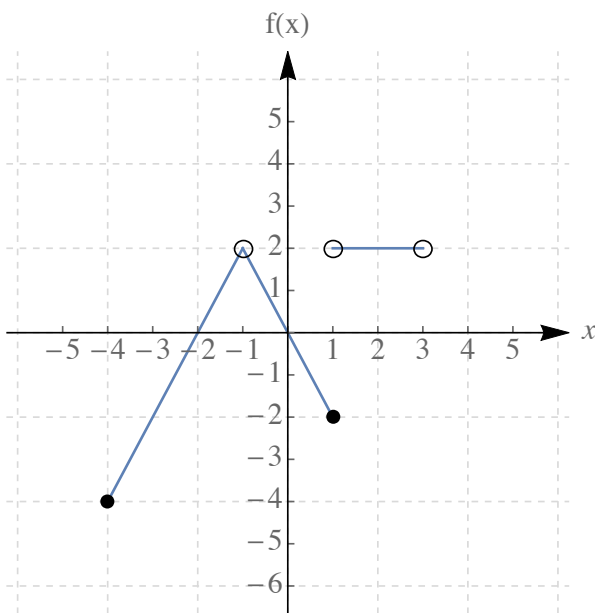
7. Find the distance between the points $(-1, -1)$ and $(3, 1)$. Simplify your answer.

8. (15 points each) Solve for x and include any complex solutions.

(a) $\sqrt{x+3} + 3 = x$

(b) $x^4 - 8x^2 - 9 = 0$ [Hint: Use a substitution]

9. Consider the following function.



(a) Find the domain and range of the graph of the function.

(b) Find $f(0)$ and $f(1)$.