

Name: _____

Student ID: _____

Instructor: _____

Class Hour: _____

INSTRUCTIONS:

- (1) **There is no credit for guessing. You must show your work to receive credit!**
- (2) Please fill in all the above information and write your name on the top of each of the 4 exam pages.
- (3) The point value on each problem appears to the left of the problem.
- (4) You must show sufficient work to justify all answers. Correct answers with inconsistent work may not be given credit.
- (5) No partial credit will be given on problems 1-3. Partial credit may be obtained on problems 4-9 provided sufficient work is shown.
- (6) Circle the letter of the correct answer in problems 1-3, and write the answers to problems 4-9 in the space provided.
- (7) No books or paper are allowed. Calculators may be used where appropriate.
- (8) The exam is self-explanatory. **Please do not ask the instructor to interpret any of the exam questions.**

Page	Points	Max Possible
1		24
2		28
3		26
4		22
Total		100

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Circle your answer to problems 1-3. You must show work to receive credit.

- (8 pts.) 1. Solve for
- x
- and simplify completely.

$$3x^2 - 6x - 4 = 0$$

- A. $1 \pm 2\sqrt{21}$
B. $1 \pm \frac{1}{3}i\sqrt{3}$
C. $1 \pm \frac{2}{3}\sqrt{21}$
D. $1 \pm \frac{1}{3}\sqrt{21}$
E. $1 \pm \frac{2}{3}i\sqrt{3}$
F. None of these

- (8 pts.) 2. Find the equation in the form
- $y = mx + b$
- that describes the line whose
- x
- intercept is
- -1
- and whose
- y
- intercept is
- 2
- .

- A. $y = -\frac{1}{2}x + 1$
B. $y = \frac{1}{2}x + 2$
C. $y = \frac{1}{2}x - 1$
D. $y = 2x - 1$
E. $y = 2x + 2$
F. $y = -2x + 2$

- (8 pts.) 3. Rewrite in the form
- $a + bi$
- , where
- a
- and
- b
- are real numbers.

$$\frac{4}{3 - 4i}$$

- A. $\frac{12}{25} + \frac{16}{25}i$
B. $-\frac{12}{7} - \frac{16}{7}i$
C. $\frac{12}{25} - \frac{16}{25}i$
D. $-\frac{12}{7} + \frac{16}{7}i$
E. None of these

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Place your answers in the spaces provided. You must show work to receive credit.

(12 pts.) 4. Solve for x.

$$\frac{3x}{x-2} + \frac{4}{x+3} - 2 = \frac{8x+14}{x^2+x-6}$$

x =

(16 pts.) 5. Solve for x. Check your answer.

(8 pts.) a) $|5x - 2| - 3 = 7$

x =

(8 pts.) b) $\sqrt{2x+19} - 2 = x$

x =

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Place your answers in the spaces provided. You must show work to receive credit.

(16 pts.) 6. Solve the inequality and express the solution in terms of intervals.

(6 pts.) a) $-5 < 3x + 7 < 8$

(10 pts.) b) $\frac{x^2 - 3x}{x + 5} \geq 0$

(10 pts.) 7. Find the equation of the circle, in standard form, which has endpoints of a diameter at $(-3, 2)$ and $(7, 6)$.

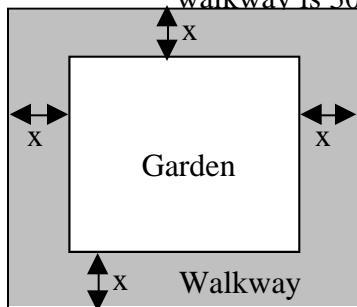
Name: _____

Place your answers in the spaces provided. You must show work to receive credit.

- (12 pts.) 8. A farmer has a tank, in the shape of a right circular cylinder, with radius of 3 ft and a volume of 339.3 ft^3 . He plans to build a new tank, in the shape of a right circular cylinder, having the same height of the first tank. Find the radius of the new tank if it will have twice the volume of the first tank. Round your answer to the nearest tenth of a foot. Name a variable, set up an equation and solve. Volume of a right circular cylinder: $V = r^2h$.

Radius =

- (10 pts.) 9. A walkway, of uniform width, surrounds a rectangular garden. The outside dimensions of everything, walkway and garden combined, are 32 feet by 24 feet. If the area of the walkway is 300 ft^2 , what is the width, x , of the walkway? Set up an equation and solve.



Width of walkway =