Class Name : **MATH 1050/1051 Fall 2018**

Instructor Name : **Nguyen**

Student Name : _____

Instructor Note :

1. Multiply.

$$(4-6i)(-3+5i)$$

Write your answer as a complex number in standard form.

2. Divide.

$$\frac{-5i}{6+4i}$$

Write your answer as a complex number in standard form.

3. Simplify the complex number i^{27} as much as possible.

4. The length of a rectangle is $3\ \text{m}$ more than twice the width, and the area of the rectangle is $54\ \text{m}^2$. Find the dimensions of the rectangle.

5. Solve $(x-9)^2-50=0$, where x is a real number.
Simplify your answer as much as possible.

6. Fill in the blank to make the expression a perfect square.

$$x^2+14x+\square$$

7. Solve the quadratic equation by completing the square.

$$x^2 - 14x + 47 = 0$$

First, choose the appropriate form and fill in the blanks with the correct numbers.
Then, solve the equation. If there is more than one solution, separate them with commas.

Form:

○ $(x + \square)^2 = \square$

○ $(x - \square)^2 = \square$

Solution:

$x = \square$

8. Use the quadratic formula to solve for x.

$$7x^2 - 3x - 2 = 0$$

9. Solve for u.

$$4 + \frac{3}{u+3} = -\frac{3}{(u+2)(u+3)}$$

10. Solve.

$$\left(x^2 - 11\right)^2 - 10\left(x^2 - 11\right) + 25 = 0$$

If there is more than one solution, separate them with commas.

11. Fill in the information about the parabolas below.

	$y=\frac{2}{3}x^2$	$y=-3x^2$	$y=-x^2$	$y=\frac{3}{4}x^2$
(a) For each parabola, choose whether it opens up or down	- up - down	- up - down	- up - updown	- up - down
(b) Choose the parabola with the widest graph	○	○	○	○
(c) Choose the parabola with the narrowest graph	○	○	○	○

12. Find the x-intercept(s) and the coordinates of the vertex for the parabola $y=-x^2+6x-5$. If there is more than one x-intercept, separate them with commas.

13. Answer the questions below about the quadratic function.

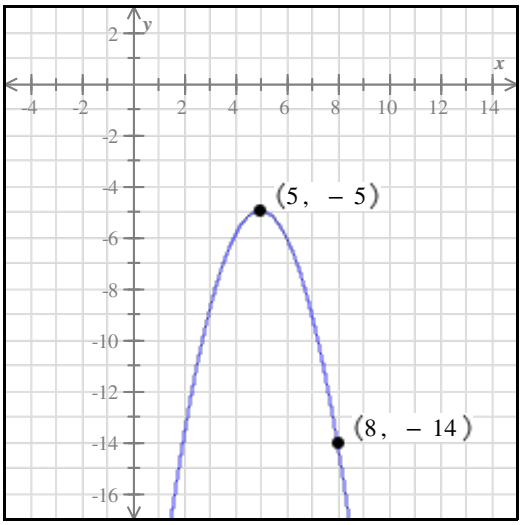
$$g(x)=-3x^2-12x-15$$

Does the function have a minimum or maximum value?
What is the function's minimum or maximum value?
Where does the minimum or maximum value occur? $x=$

14. For each function below, choose the correct description of its graph:

	vertical line	horizontal line	line with a negative slope	line with a positive slope	parabola opening down	parabola opening up
$f(x)=-3x^2-4$	○	○	○	○	○	○
$h(x)=-x+2$	○	○	○	○	○	○
$g(x)=-5$	○	○	○	○	○	○

15. Find the equation of the quadratic function f whose graph is shown below.



Obj. 7 #5 Answers for class MATH 1050/1051 Fall 2018

1. $18+38i$

2. $-\frac{5}{13}-\frac{15}{26}i$

3. $-i$

4.

Length: 12 m

Width: 4.5 m

5. $x=9+5\sqrt{2}, 9-5\sqrt{2}$

6. $x^2+14x+49$

7.

Form: ○ $(x+\square)^2=\square$ ◉ $(x-7)^2=2$
Solution: $x=7+\sqrt{2}, 7-\sqrt{2}$

8. $\frac{3+\sqrt{65}}{14}, \frac{3-\sqrt{65}}{14}.$

9. $u=-\frac{11}{4}$

10. $x = 4,\ -4$

11.

	$y = \frac{2}{3}x^2$	$y = -3x^2$	$y = -x^2$	$y = \frac{3}{4}x^2$
(a) For each parabola, choose whether it opens up or down	**- up** - down	- up **- down**	- up **- down**	**- up** - down
(b) Choose the parabola with the widest graph	◉	○	○	○
(c) Choose the parabola with the narrowest graph	○	◉	○	○

12. x-intercept(s): $1\ ,\ 5$

vertex: $(3,\ 4)$

13.

Does the function have a minimum or maximum value? maximum
What is the function's minimum or maximum value? -3
Where does the minimum or maximum value occur? $x = -2$

14.

	vertical line	horizontal line	line with a negative slope	line with a positive slope	parabola opening down	parabola opening up
$f(x) = -3x^2 - 4$	○	○	○	○	◉	○
$h(x) = -x + 2$	○	○	◉	○	○	○
$g(x) = -5$	○	◉	○	○	○	○

15. $f(x) = -(x-5)^2 - 5$