UNIT 6 Non Real Numbers

NAME:_____

CORRECTIVE ASSIGNMENT

DATE:_____

Simplify.

1. i^{60}

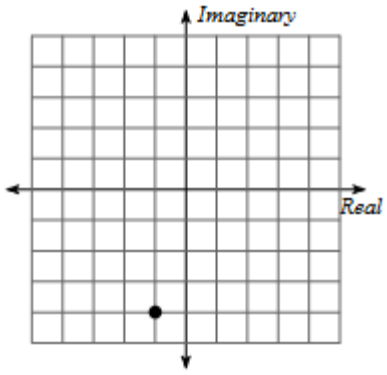
2. i^{37}

3. $\sqrt{-36}$

4. $\sqrt{-150}$

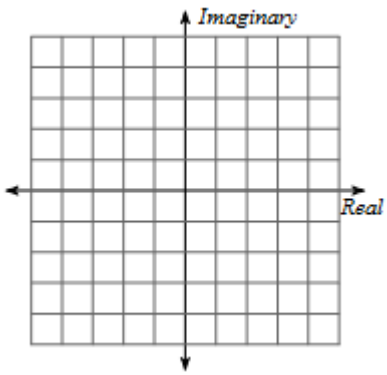
Identify the complex number graphed

5.



Graph in the complex plane.

6. $-2 + i$



Simplify.

7. $-2i - (-2 - i)$

8. $(3 - i) + (-5 - 7i)$

9. $-4i(5 - 8i)$

10. $(3 + 2i)(8 - 4i)$

11. $\frac{-5-6i}{7i}$

12. $\frac{1+9i}{2-9i}$

Solve each equation by taking square roots.

13. $6n^2 + 6 = -54$

14. $2m^2 + 2 = 1$

15. $(x + 2)^2 - 4 = -28$

16. $5(3x + 18)^2 + 9 = -51$

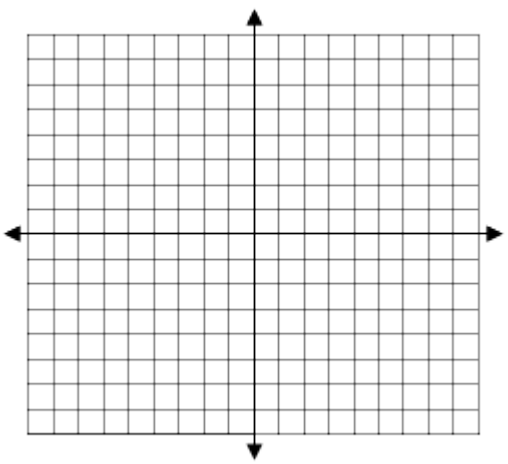
Solve each equation by completing the square.

17. $m^2 + 10m + 74 = 0$

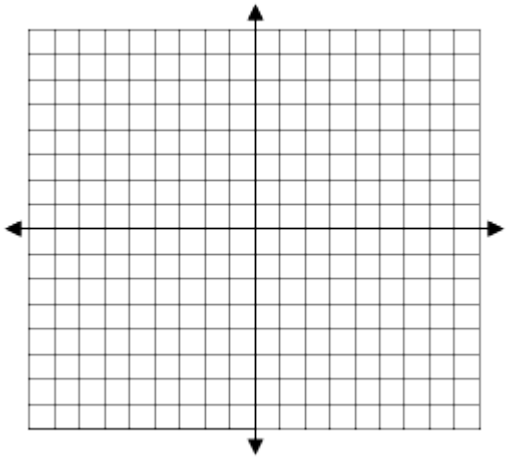
18. $8n^2 - 16n + 2 = -4$

Write the following in vertex form. Graph it. Find the roots and label on the graph.

19. $y = -x^2 + 2x + 2$



20. $y = -2x^2 + 8x - 4$



Find the discriminant. State the number and type of solutions.

21. $-10v^2 + 4v - 3 = 0$

22. $-6a^2 + 9a + 3 = 3$

Solve each equation using the quadratic formula.

23. $3b^2 - 8b - 43 = 8$

24. $4p^2 - 7p = 3p + 2$

APPLICATION

1. SAT PREP

MULITPLE CHOICE

If $\Cap m \Cap = 5m - 2m^2$, then find $\Cap -2 \Cap$.

(A) -2
(B) -18
(C) 6
(D) 2
(E) 18

GRID IN

$x \boxplus y = -2x - 2y$. If $4 \boxplus 9 = k \boxplus 12$, find the value of k.

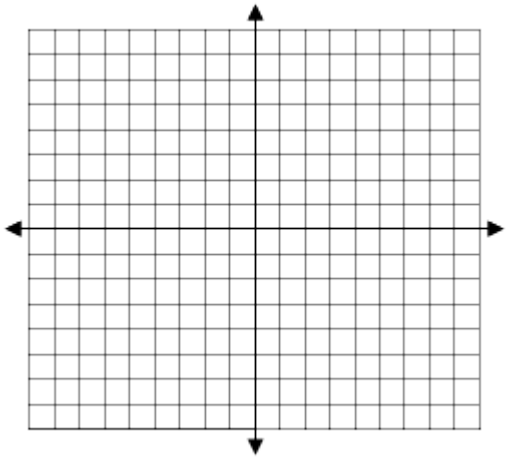
GRAPH IT!

2. You can graph any function without a graphing calculator. Just use a table of values and plot the points. So, do NOT graph this function in your calculator, rather fill in the table, plot the points and make a sketch.

x	*y*
-7	
-5	
-3	
-1	
0	
1	
3	
5	
7	

$$y = \frac{x^2-2x-8}{x^2+1}$$

Find the roots of the quadratic function in the numerator. These are also the roots of the entire function because zero divided by anything is zero. Plot and label these points on your graph.



VERTICAL MOTION An object that travels up and down is modeled by the quadratic function below:

$$h(t) = -16t^2 + v_0t + h_o$$

h = height of object (feet), t = time (seconds), v_0= initial velocity of object (ft/sec), h_o= initial height of object (feet)

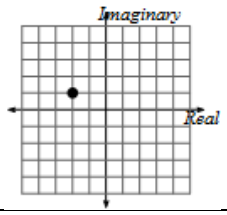
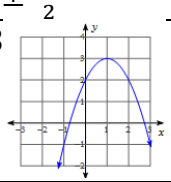
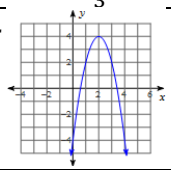
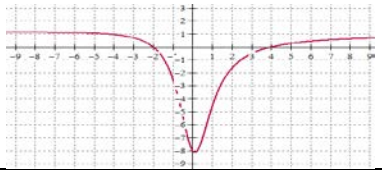
3. Sarah stands on 20 foot rooftop and throws up her skateboard with an initial velocity of 40 ft/sec.

a. Write a function represent the height of the skateboard over time.

b. What does $h(t) = 35$ mean? Find it.

c. What is the maximum height of the skateboard?

ANSWERS TO UNIT 6 CORRECTIVE ASSIGNMENT

1. i^4	2. i	3. $6i$	4. $5i\sqrt{6}$	5. $-1-4i$	6. 
7. $2-i$	8. $-2-8i$	9. $-32-20i$	10. $32+4i$	11. $\frac{5i-6}{7}$	
12. $\frac{-79+27i}{85}$	13. $\pm i\sqrt{10}$	14. $\pm\frac{i\sqrt{2}}{2}$	15. $-2\pm 2i\sqrt{6}$	16. $-6\pm\frac{2i\sqrt{3}}{3}$	17. $-5\pm 7i$
18. $\frac{3}{2}$ and $\frac{1}{2}$	19. $y=-(x-1)^2+3$ Roots: $1\pm\sqrt{3}$ 		20. $y=2(x-2)^2+4$ Roots: $2\pm\sqrt{2}$ 		21. -104 2 imaginary solutions
22. 81 2 real solutions	23. $\frac{17}{3}$ and -3	24. $\frac{5}{4}\pm\frac{\sqrt{33}}{4}$	1. B, 1	2. Roots: 4 and -2 	3. a. $h(t)=-16t^2+40t+20$ b. At what time is the skateboard 35 feet in the air? $\frac{5}{4}\pm\frac{\sqrt{10}}{4}$ sec c. 45 feet