

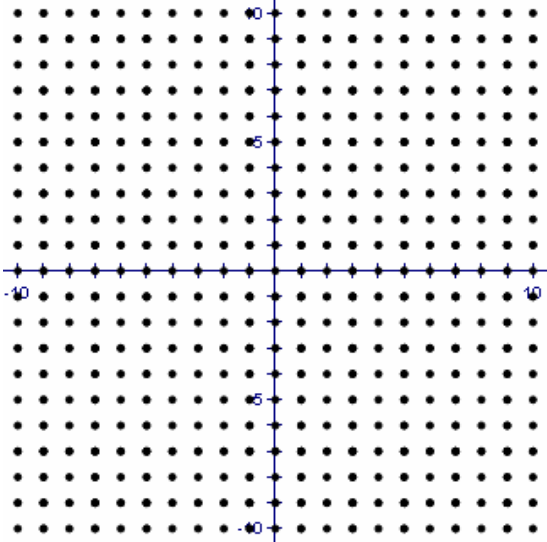
Algebra 2  
Six-Weeks Review

1. Solve:  $x^2 + 45 = 12x$

2.  $i^2 =$

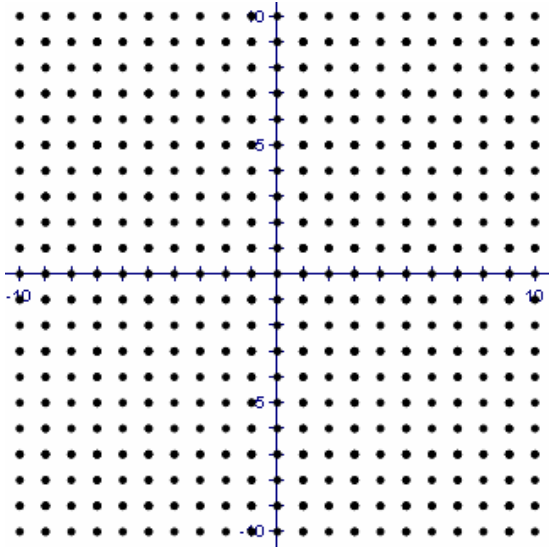
3. Solve:  $x^2 = 16x - 62$

4. Graph:  $y \geq x^2 + 6x + 5$



5. Solve:  $16x^2 - 240x + 875 = 0$

6. Graph:  $y = \sqrt{x-4} - 5$



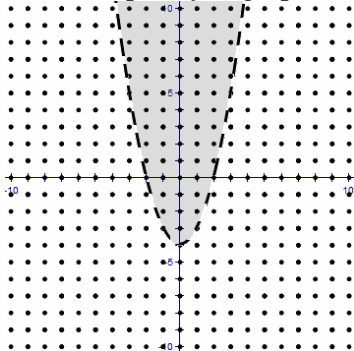
7.  $(6-5i)(5-7i) =$

8. Solve:  $2x^2 = 9(x+2)$

9.  $i^4 =$

10. Solve:  $3x^2 - 16x = 35$

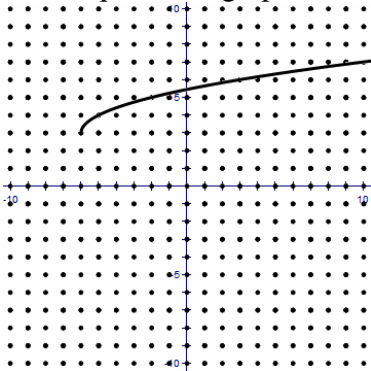
11. What inequality is graphed below?



12. Solve:  $2x^2 = 17x$

13.  $\frac{31-3i}{3+i} =$

14. What equation is graphed below:?



15. Solve:  $x^2 + 8 = -10x$

16.  $(2+i)(1-9i) =$

17. A frog jumps off a 3 foot porch and lands on the ground. Its initial vertical velocity is 4 feet per second, so its height during the jump is described by the function  $h = -16t^2 + 4t + 3$ , where  $h$  is the height in feet and  $t$  is the time in seconds since the beginning of the jump.

a. What is the frog's height after  $\frac{1}{2}$  a second?

b. How long is the frog at least 3 feet in the air?

c. What is the maximum height the frog attains?

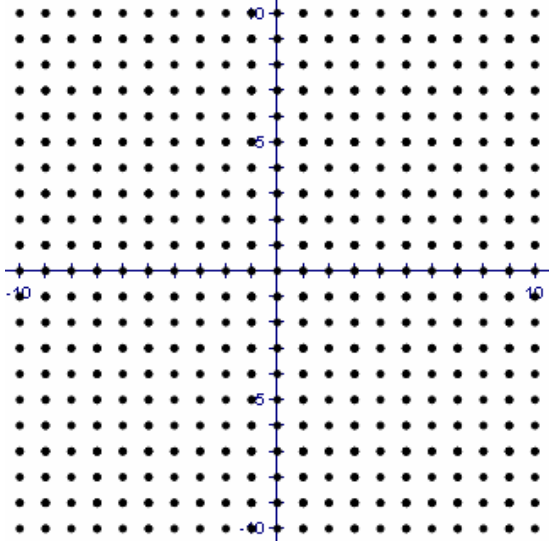
d. How long does it take the frog to get to its maximum height?

e. How long does it take the frog to hit the ground?

18.  $i^{20} =$

19. Solve:  $4x^2 + 377 = 44x$

20. Graph:  $y = \sqrt{x+2} + 5$



21. Solve:  $x^2 + 6x + 16 = 0$

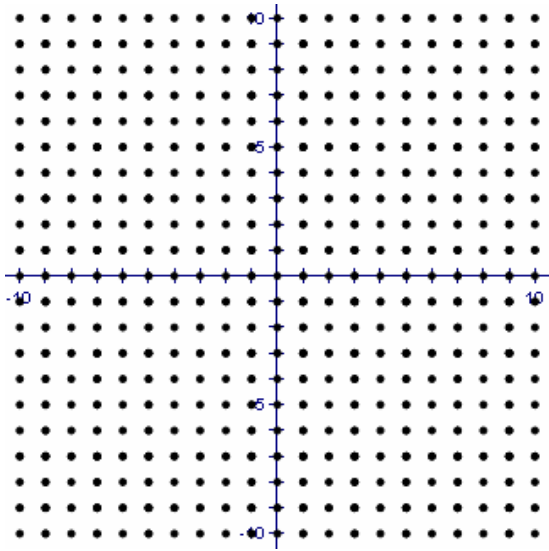
22.  $(4 + 3i) - (3 + 2i) =$

23. Solve:  $2x^2 = 67x + 180$

24.  $(3 + i) + (-2 - i) =$

25.  $\frac{2i}{1+i} =$

26. Graph:  $y = \sqrt{x-1} + 3$



27. State the domain and range of the following functions:

Example:  $y = \sqrt{x-2}$     Domain:  $x \geq 2$     Range:  $y \geq 0$

a.  $y = \sqrt{x}$

b.  $y = x^2$

c.  $y = 5 - \sqrt{x}$

d.  $y = x^2 - 6x + 7$

e.  $y = \sqrt{x-3} + 9$

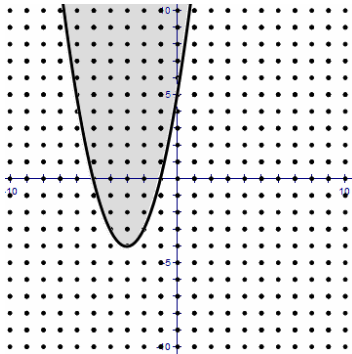
f.  $y = \sqrt{x+11} - 8$

Algebra 2 Six-Weeks Review Answers:

1.  $6 \pm 3i$

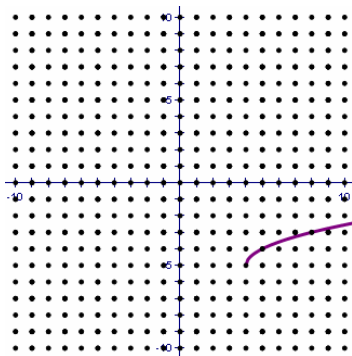
2. -1

3.  $8 \pm \sqrt{2}$



4.

5. 6.25, 8.75



6.

7.  $-5 - 67i$

8. -1.5, 6

9. 1

10.  $-\frac{5}{3}, 7$

11.  $y > x - 4$

12. 0, 8.5

13.  $9 - 4i$

14.  $y = \sqrt{x+6} + 3$

15.  $-5 \pm \sqrt{17}$

16.  $11 - 17i$

17. a. 1 foot

b.  $\frac{1}{4}$  second

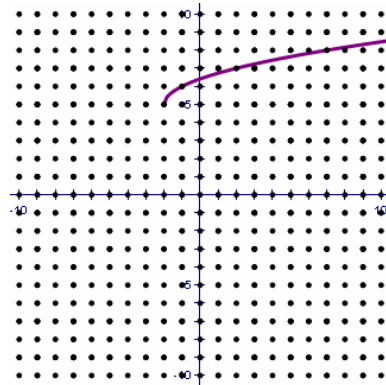
c. 3.25 feet

d.  $\frac{1}{8}$  second

e. 0.5757 seconds

18. 1

19.  $5.5 \pm 8i$



20.

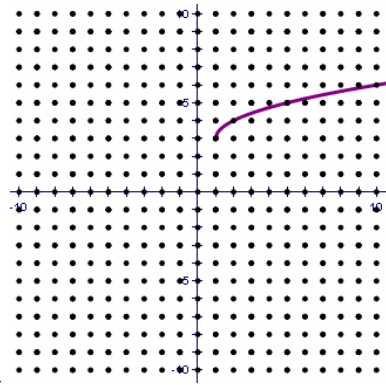
21.  $-3 \pm i\sqrt{7}$

22.  $1 + i$

23. 36, -2.5

24. 1

25.  $1 + i$



26.

27. a. Domain:  $x \geq 0$ , Range:  $y \geq 0$

b. Domain:  $\mathfrak{R}$  (all real numbers), Range:  $y \geq 0$

c. Domain:  $x \geq 0$ , Range:  $y \leq 5$

d. Domain:  $\mathfrak{R}$ , Range:  $y \geq -2$

e. Domain:  $x \geq 3$ , Range:  $y \geq 9$

f. Domain:  $x \geq -11$ , Range:  $y \geq -8$