

**Chapter 9**  
**Form E**

For problems 1 – 2, simplify each number.

1.  $\sqrt{-169}$   
a. 13                      b.  $13i$                       c.  $\pm 13$                       d.  $-13$
2.  $\sqrt{-128}$   
a.  $-8\sqrt{2}$                       b.  $-4\sqrt{2}$                       c.  $8\sqrt{2} i$                       d.  $\pm 8\sqrt{2} i$
3. Solve by the square root property:  $(2x - 7)^2 = 49$ .  
a.  $\{7, 0\}$                       b.  $\{7\}$                       c.  $\left\{\frac{7}{2}\right\}$                       d.  $\{0\}$
4. Solve by completing the square:  $x^2 - 10x - 5 = 0$ .  
a.  $\{5, 2\}$                       b.  $\{5 \pm \sqrt{30}\}$                       c.  $\{-5 \pm \sqrt{30}\}$                       d.  $\{-5, 2\}$
5. Solve by the quadratic formula:  $4x^2 - 7x + 5 = 0$ .  
a.  $\left\{\frac{-7 \pm \sqrt{31}i}{8}\right\}$                       b.  $\left\{\frac{7 \pm \sqrt{31}i}{8}\right\}$                       c.  $\left\{\frac{7 \pm \sqrt{129}i}{8}\right\}$                       d.  $\left\{\frac{-7 \pm \sqrt{129}i}{8}\right\}$

For problems 6 – 11, solve each equation by the method of your choice.

6.  $25x^2 - 64 = 0$   
a.  $\left\{\pm \frac{8}{5}\right\}$                       b.  $\left\{\pm \frac{5}{8}\right\}$                       c.  $\left\{\pm \frac{64}{25}\right\}$                       d.  $\left\{\pm \frac{25}{64}\right\}$
7.  $x^2 + 6x - 1 = 0$   
a.  $\{3 \pm \sqrt{10}\}$                       b.  $\{3 \pm \sqrt{5}\}$                       c.  $\{-3 \pm \sqrt{5}\}$                       d.  $\{-3 \pm \sqrt{10}\}$
8.  $x^2 - 4x = -3$   
a.  $\{-3, -1\}$                       b.  $\{1, 3\}$                       c.  $\{2 \pm \sqrt{7}\}$                       d.  $\{2 \pm i\}$
9.  $(x - 8)^2 = 27$   
a.  $\{19, 35\}$                       b.  $\{8 + \sqrt{27}\}$                       c.  $\{\pm \sqrt{15}\}$                       d.  $\{8 \pm 3\sqrt{3}\}$
10.  $(x - 3)(2x + 2) = -15$   
a.  $\left\{-12, -\frac{17}{2}\right\}$                       b.  $\{1 \pm \sqrt{7}i\}$                       c.  $\{1 \pm 2\sqrt{14}i\}$                       d.  $\left\{\frac{2 \pm \sqrt{14}i}{2}\right\}$

11.  $25x^2 + 9 = 0$

a.  $\left\{\pm \frac{3}{5}\right\}$

b.  $\left\{-\frac{3}{5}\right\}$

c.  $\left\{\pm \frac{3i}{5}\right\}$

d.  $\left\{\pm \frac{\sqrt{3}i}{5}\right\}$

12. The  $x$ -intercepts of  $y = 2x^2 - 10x + 8$  are:

a.  $-4$  and  $-1$

b.  $-4$  and  $1$

c.  $1$  and  $4$

d.  $-1$  and  $4$

13. The vertex of  $y = -3x^2 - 4x + 7$  is:

a.  $\left(-\frac{2}{3}, \frac{25}{3}\right)$

b.  $\left(\frac{2}{3}, \frac{25}{3}\right)$

c.  $\left(\frac{2}{3}, \frac{9}{3}\right)$

d.  $(-1, 8)$

14. The  $y$ -intercept of  $y = -2x^2 + 10x - 8$  is:

a.  $-8$

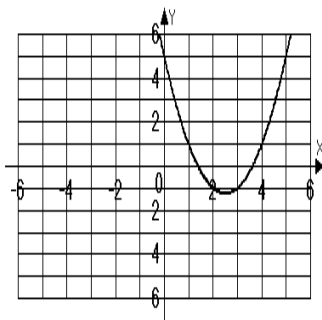
b.  $8$

c.  $4$

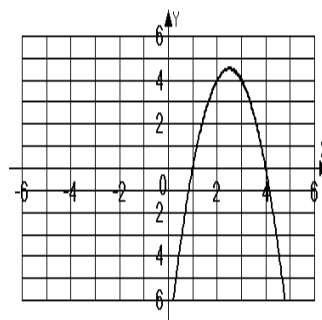
d.  $-5$

15. The graph of  $y = -2x^2 + 10x - 8$  is:

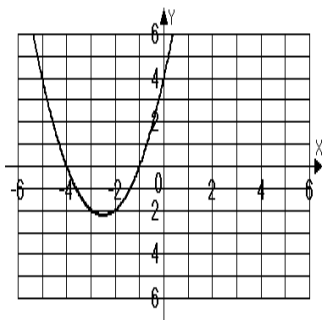
a.



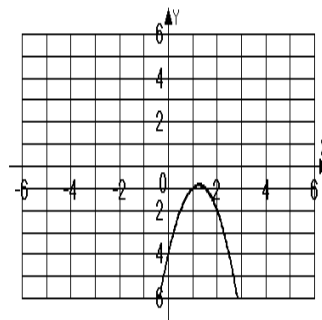
b.



c.



d.



For problems 16 – 17, a ball is thrown upward with a speed of 48 feet per second from a height of 64 feet. The formula  $y = -16x^2 + 48x + 64$  models the ball's height above the ground,  $y$ , in feet,  $x$  seconds after it was thrown.

16. At what time does the ball strike the ground?

a. 3 sec

b.  $-1$  sec

c. 1.5 sec

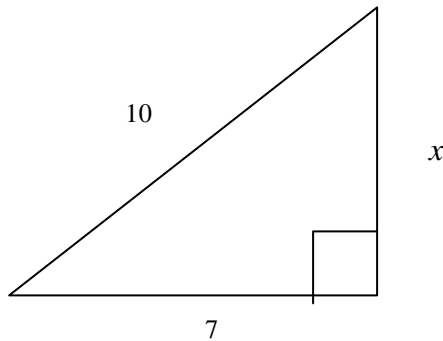
d. 4 sec

Name \_\_\_\_\_

Date \_\_\_\_\_

17. What is the maximum height of the ball above the ground?  
a. 100 feet                      b. 1.5 feet                      c. 64 feet                      d. 4 feet
18. Is the relation  $\{(5, 3)(5, 2)(5, 1)\}$  a function? Give the domain and range for the relation.  
a. Yes    b. No  
    Domain  $\{3, 2, 1\}$     Domain:  $\{3, 2, 1\}$   
    Range:  $\{5\}$     Range:  $\{5\}$   
c. No    d. Yes  
    Domain  $\{5\}$     Domain:  $\{5\}$   
    Range:  $\{3, 2, 1\}$     Range:  $\{3, 2, 1\}$
19. If  $f(x) = -3x^2 - 4x + 5$ , find  $f(-2)$ .  
a. 1    b. -15    c. 25    d. 9

20. Find the missing length in the right triangle shown. Express the answer in simplified radical form.



- a. 3    b.  $\sqrt{51}$     c. 9    d.  $\sqrt{149}$