

Name \_\_\_\_\_

To receive full credit for the assignment you must show your work (write the steps to arrive at each answer).  
You should attach extra sheets, if necessary, to show your work properly.

**Solve. Give exact solutions.**

1)  $x^2 = 144$

A) 72

B) 12

C)  $\pm 12$

D)  $\pm 13$

1) \_\_\_\_\_

2)  $5z^2 + 320 = 0$

A)  $\pm 8i$

B) 8

C)  $8i$

D)  $\pm 8$

2) \_\_\_\_\_

3)  $(x - 2)^2 = 4$

3) \_\_\_\_\_

4)  $(r + 5)^2 = 10$

A) 5

B)  $-5 + \sqrt{10}, -5 - \sqrt{10}$

C)  $\sqrt{10}, \sqrt{10}$

D)  $5 + \sqrt{10}, 5 - \sqrt{10}$

4) \_\_\_\_\_

5)  $(x + 4)^2 = 24$

5) \_\_\_\_\_

6)  $x^2 - 14x + 49 = 16$

6) \_\_\_\_\_

7)  $x^2 + 12x + 36 = 14$

A)  $\sqrt{14}, \sqrt{14}$

B) 8

C)  $-6 + \sqrt{14}, -6 - \sqrt{14}$

D)  $6 + \sqrt{14}, 6 - \sqrt{14}$

7) \_\_\_\_\_

Find the x-intercepts.

8)  $f(x) = x^2 - 7$

- A) x-intercepts  $(0, \sqrt{7})$  and  $(0, -\sqrt{7})$
- B) x-intercepts  $(\sqrt{7}, 0)$  and  $(-\sqrt{7}, 0)$
- C) x-intercepts  $(0, 7)$  and  $(0, -7)$
- D) No x-intercepts

8) \_\_\_\_\_

9)  $f(x) = -x^2 + 7x - 12$

9) \_\_\_\_\_

Solve the equation by completing the square.

10)  $a^2 - 12a + 32 = 0$

- A) 28, 4
- B) 8, 4
- C)  $\sqrt{32}, -\sqrt{32}$
- D) -8, -4

10) \_\_\_\_\_

11)  $z^2 + 10z + 6 = 0$

- A)  $5 \pm \sqrt{6}$
- B)  $5 + \sqrt{19}$
- C)  $-10 + \sqrt{6}$
- D)  $-5 \pm \sqrt{19}$

11) \_\_\_\_\_

**Solve by completing the square.**

12)  $x^2 + 8x = 3$

12) \_\_\_\_\_

13)  $x^2 + 3x - 9 = 0$

13) \_\_\_\_\_

A)  $\frac{-3 - 3\sqrt{5}}{2}$

B)  $-3 \pm 3\sqrt{5}$

C)  $\frac{-3 \pm 3\sqrt{5}}{2}$

D)  $\frac{3 + 3\sqrt{5}}{2}$

**Solve the problem. Give the answer to the nearest tenth.**

14) The hang-time function  $V(T) = 48T^2$ , relates vertical leap to hang time. A player has a vertical leap of 32 in. What is his hang time?

14) \_\_\_\_\_

- A) 1.2 sec
- B) 39.2 sec
- C) 0.8 sec
- D) 0.7 sec

15) A ball is thrown downward from a window in a tall building. Its position at time  $t$  in seconds is  $s = 16t^2 + 32t$ , where  $s$  is in feet. How long (to the nearest tenth) will it take the ball to fall 187 feet?

15) \_\_\_\_\_

- A) 2.6 sec
- B) 2.4 sec
- C) 3.4 sec
- D) 6.8 sec

Solve.

16)  $7x^2 + 8x = -2$

16) \_\_\_\_\_

A)  $\frac{-4 \pm \sqrt{30}}{7}$

B)  $\frac{-4 \pm \sqrt{2}}{7}$

C)  $\frac{-8 \pm \sqrt{2}}{7}$

D)  $\frac{-4 \pm \sqrt{2}}{14}$

17)  $6x^2 = -21x - 3$

17) \_\_\_\_\_

A)  $\frac{-21 \pm \sqrt{41}}{4}$

B)  $\frac{-7 \pm \sqrt{41}}{4}$

C)  $\frac{-7 \pm \sqrt{57}}{4}$

D)  $\frac{-7 \pm \sqrt{41}}{12}$

18)  $\frac{8}{x} + \frac{8}{x+12} = 1$

18) \_\_\_\_\_

19)  $x^2 + x + 2 = 0$

19) \_\_\_\_\_

A)  $-\frac{1}{2} \pm \frac{\sqrt{7}}{2}i$

B)  $\frac{1}{2} \pm \frac{\sqrt{7}}{2}$

C)  $-\frac{1}{2} \pm \frac{\sqrt{7}}{2}$

D)  $\frac{1}{2} \pm \frac{\sqrt{7}}{2}i$

20)  $9x^2 = -7x - 5$

20) \_\_\_\_\_

A)  $-\frac{7}{18} \pm \frac{\sqrt{131}}{18}$

B)  $\frac{7}{18} \pm \frac{\sqrt{131}}{18}$

C)  $-\frac{7}{18} \pm \frac{\sqrt{131}}{18}i$

D)  $\frac{7}{18} \pm \frac{\sqrt{131}}{18}i$

**Find the x-intercepts.**

21)  $f(x) = 4x^2 - 5x - 5$

21) \_\_\_\_\_

A)  $(\frac{5 + \sqrt{105}}{8}, 0)$  and  $(\frac{5 - \sqrt{105}}{8}, 0)$

B) No x-intercepts

C) (2, 0) and (5, 0)

D)  $(\frac{5 + \sqrt{75}}{8}, 0)$  and  $(\frac{5 - \sqrt{75}}{8}, 0)$

**Solve.**

- 22) A ladder is resting against a wall. The top of the ladder touches the wall at a height of 12 ft. Find the length of the ladder if the length is 4 ft more than its distance from the wall. 22) \_\_\_\_\_
- A) 20 ft
  - B) 24 ft
  - C) 12 ft
  - D) 16 ft

- 23) A rectangular garden has dimensions of 20 feet by 11 feet. A gravel path of equal width is to be built around the garden. How wide can the path be if there is enough gravel for 312 square feet? 23) \_\_\_\_\_
- A) 6 ft
  - B) 4 ft
  - C) 5 ft
  - D) 6.5 ft

**Solve the formula for the indicated letter. Assume that all variables represent nonnegative numbers.**

- 24)  $A = \frac{1}{3}\pi r^2$  for r 24) \_\_\_\_\_
- A)  $r = \sqrt{\frac{A}{3\pi}}$
  - B)  $r = \sqrt{\frac{3A}{\pi}}$
  - C)  $r = 3\sqrt{A\pi}$
  - D)  $r = \frac{3\pi}{A}$

25)  $x = \sqrt{r^2 - y^2}$  for r

- A)  $r = \sqrt{x + y}$
- B)  $r = \sqrt{x^2 - y^2}$
- C)  $r = x + y$
- D)  $r = \sqrt{x^2 + y^2}$

25) \_\_\_\_\_

26)  $q = \frac{p}{\sqrt{p^2 + 1}}$ , for p

- A)  $p = \frac{q}{\sqrt{q^2 - 1}}$
- B)  $p = \frac{q}{q^2 + 1}$
- C)  $p = \frac{q}{\sqrt{1 - q^2}}$
- D)  $p = \frac{q}{1 - q^2}$

26) \_\_\_\_\_

**Determine the nature of the solutions of the equation.**

27)  $s^2 - 2s - 3 = 0$

- A) One real
- B) Two nonreal
- C) Two real

27) \_\_\_\_\_



- 28)  $t^2 - 6t + 9 = 0$   
A) Two nonreal  
B) One real  
C) Two real

28) \_\_\_\_\_

- 29)  $w^2 - 3w + 5 = 0$   
A) Two real  
B) Two nonreal  
C) One real

29) \_\_\_\_\_

- 30)  $3y^2 = -4y - 3$   
A) One real  
B) Two real  
C) Two nonreal

30) \_\_\_\_\_

**Write a quadratic equation having the given numbers as solutions.**

- 31) 3, 10  
A)  $x^2 - 13x + 30 = 0$   
B)  $x^2 + 30x + 13 = 0$   
C)  $x^2 + 30x - 13 = 0$   
D)  $x^2 + 13x + 30 = 0$

31) \_\_\_\_\_

32)  $-\frac{4}{3}, -\frac{9}{2}$

32) \_\_\_\_\_

A)  $2x^2 + 12x - 27 = 0$

B)  $2x^2 - 27x + 12 = 0$

C)  $6x^2 - 35x + 36 = 0$

D)  $6x^2 + 35x + 36 = 0$

33)  $\sqrt{6}, -10\sqrt{6}$

33) \_\_\_\_\_

A)  $x^2 - 60\sqrt{6}x - 9 = 0$

B)  $x^2 + 9\sqrt{6}x - 60 = 0$

C)  $x^2 - 60\sqrt{6}x + 9 = 0$

D)  $x^2 - 9\sqrt{6}x - 60 = 0$

**Solve.**

34)  $(2m + 3)^2 - 10(2m + 3) + 24 = 0$

34) \_\_\_\_\_

A)  $\frac{9}{2}, -\frac{7}{2}$

B)  $\frac{3}{2}, \frac{1}{2}$

C)  $-\frac{3}{2}, -\frac{1}{2}$

D)  $-\frac{9}{3}, \frac{7}{2}$

35)  $4p^{-2} - 18p^{-1} + 8 = 0$

A)  $-2, -\frac{1}{4}$

B)  $-\frac{1}{2}, -4$

C)  $2, \frac{1}{4}$

D)  $\frac{1}{2}, 4$

35) \_\_\_\_\_

36)  $(y - 5)^{2/3} + 4(y - 5)^{1/3} - 5 = 0$

A)  $-120, 6$

B)  $120, 6$

C)  $\sqrt[3]{-5}, \sqrt[3]{1}$

D)  $-5, 1$

36) \_\_\_\_\_

37)  $x^4 - 4x^2 + 3 = 0$

A)  $1, \sqrt{3}$

B)  $\pm 1, \pm 3$

C)  $\pm 1, \pm 2\sqrt{3}$

D)  $\pm 1, \pm\sqrt{3}$

37) \_\_\_\_\_

38)  $x^4 - 19x^2 + 18 = 0$

- A)  $\pm 1, \pm\sqrt{2}$
- B)  $\pm 1, \pm 3\sqrt{3}$
- C)  $\pm 1, \pm 3\sqrt{2}$
- D)  $\pm 2, \pm 3$

38) \_\_\_\_\_

39)  $(x^2 - 7)^2 + 7(x^2 - 7) + 10 = 0$

- A)  $\pm\sqrt{2}$
- B)  $\pm\sqrt{0}, \pm\sqrt{5}$
- C)  $\sqrt{2}, \sqrt{5}$
- D)  $\pm\sqrt{2}, \pm\sqrt{5}$

39) \_\_\_\_\_

**Find the x-intercepts of the function.**

40)  $f(x) = x^{1/2} + 2x^{1/4} - 8$

- A) (16, 0), (256, 0)
- B) (16, 0)
- C) (2, 0), (-4, 0)
- D) (4, 0)

40) \_\_\_\_\_

## Answer Key

Testname: 11FALL\_BCCM203\_CH7\_PROBS

- 1) C
- 2) A
- 3) 4, 0
- 4) B
- 5)  $-4 + 2\sqrt{6}$ ,  $-4 - 2\sqrt{6}$
- 6) 11, 3
- 7) C
- 8) B
- 9) x-intercepts (3, 0) and (4, 0)
- 10) B
- 11) D
- 12)  $-4 \pm \sqrt{19}$
- 13) C
- 14) C
- 15) A
- 16) B
- 17) B
- 18) -8, 12
- 19) A
- 20) C
- 21) A
- 22) A
- 23) B
- 24) B
- 25) D
- 26) C
- 27) C
- 28) B
- 29) B
- 30) C
- 31) A
- 32) D
- 33) B
- 34) B
- 35) C
- 36) A
- 37) D
- 38) C
- 39) D
- 40) B