When you turn in one of these problems make sure that the paper has your name, the problem number, the due date and the reference number on it. Note that the page and numbers refer to *Crossing the River with Dogs*, 3rd ed. Note that if you have a print copy of the book, the page numbers may be different. Make sure you do the right problem.

1. Due August 28, 2019 (ref. 0A1-1) page 9, number 1.
2. Due August 28, 2019 (ref. 0A1-4) page 10, number 4.
3. Due September 4, 2019 (ref. 1A1-3) page 20, number 3.
5. Due September 9, 2019 (ref. 1A1-12) page 20, number 12.
7. Due September 11, 2019 (ref. 2A1-3) page 43, number 3.
10. Due September 16, 2019 (ref. 3A1-3) page 64, problem 3.
12. Due September 18, 2019 (ref. 3C1-1) Seven friends decided to try their luck on the lottery. Each of them chose 6 numbers from 2 to 49. Casey chose multiples of 3. Andy’s greatest number was 10. Autumn chose primes totaling 150. Trent and Matt each chose 6 consecutive numbers. Trent’s are higher in value. Rachel chose multiples of 7. Alex chose perfect squares. These unlucky friends failed to choose a single correct number. Show which numbers each person chose. What 6 numbers should you have chosen to win the lottery?
16. Due September 25, 2019 (ref. 4A2-2) Amaya, Ostergard, Blue Cloud, and Katricz are the last names of Timothy, Diana, Mack and Sherry. They are all playing in a mixed doubles tennis tournament. Two people are on each team. There is one man and one woman on each team. Determine the full name of each player by using these clues.
   (a) Mack is a better player than Ostergard.
   (b) Timothy is Diana’s partner.
   (c) Sherry and Katricz are on the same team.
   (d) Amaya is known for his wicked serve.
   (e) Katricz is an opponent of Ostergard.
   (f) Blue Cloud is an opponent of Amaya.

18. **Due September 30, 2019** (ref. 5A2-1) Write the next three numbers in each sequence and explain your pattern.
   
   (a) 5, 8, 11, 14, 17, ___, ___, ___  

   (b) 3, 2, 5, 7, 12, ___, ___, ___  

   (c) -1, 5, 4, 9, 13, ___, ___, ___  

   (d) 4, 5, 7, 10, 10, 13, ___, ___, ___  

   (e) -2, -1, 1, 4, 8, ___, ___, ___  

   (f) 5, 7, 11, 19, 35, ___, ___, ___  

19. **Due October 7, 2019** (ref. 5A1-3) page 134, problem 3.

20. **Due October 7, 2019** (ref. 5A1-8) page 134, number 8.

21. **Due October 9, 2019** (ref. 6A1-2) page 165, number 2.

22. **Due October 9, 2019** (ref. 6A2-3) Christopher has four more than twice as many rocks in his wagon as Gordon has in his wagon. If Christopher gives Gordon six rocks, he will have one more than Gordon. How many rocks does each boy have in his wagon right now?

23. **Due October 14, 2019** (ref. 6A2-7) Northern Minnesota College has about 6 second year students for every 7 first year students. There are currently 1131 students in those two classes. How many more first year students are there than second year students?

24. **Due October 14, 2019** (ref. 6A2-8) As an investment principle, Alan tries to keep a ratio of $9 blue-chip stocks to every $2 in high-risk stocks. If he currently has a total of $95,700 invested in those categories of stocks, how much does he have invested in blue-chip stocks?

25. **Due October 16, 2019** (ref. 6A2-12) Karin has $8.15 in quarters, dimes and nickels. She has three more nickels than quarters. She has a total of 70 coins. How many of each coin does she have?

26. **Due October 16, 2019** (ref. 6B2-2) A group of friends decided to rent a house in Aspen, Colorado for a week of skiing. They each had to chip in $70 for the week’s lodging. If they had been able to convince three more people to go, the cost per person would have been reduced by $14. What was the rent for the week?

27. **Due October 21, 2019** (ref. 7A1-7) page 190, number 7.

28. **Due October 21, 2019** (ref. 7A1-11) page 190, number 11.

29. **Due October 21, 2019** (ref. 7A2-10) A patch of grass measuring 6 feet by 6 feet requires 2 ounces of fertilizer. How many pound should be used on a lawn that measures 30 feet by 75 feet?

30. **Due October 21, 2019** (ref. 7B2-3) In the old days, type was set by hand with lead pieces. Each individual letter or number in each word had to be carefully put together. A printer wanted to print a list of whole numbers from 1 to 1000. If he had only 100 of each of the digits from 0 to 9, how many numbers could he set before he ran out of some digit?
31. **Due October 30, 2019** (ref. 7B3-2) A Gamuse playground is a sight to see and an engineering wonder. This type of playground has 16 floors. Each floor is connected to another floor by various mechanical devices. Any even-numbered floor has an escalator up to the next even-numbered floor. Every odd-numbered floor has a slide down to the next odd-numbered floor. Several other floors (1, 2, 3, 5, 8, and 13) have an up-and-down “tube-chute” (like mail tubes in an office building) that will take you to another tube-chute floor above or below. How would somebody go from the eleventh floor of this playground to the twelfth floor?

32. **Due October 30, 2019** (ref 9A1-5) page 257, number 5.

33. **Due October 30, 2019** (ref. 9A1-10) page 257, number 10.

34. **Due October 30, 2019** (ref. 9A2-9) Ricardo kept saving pennies. Every day he saved the same number of pennies as the days’ date (for example, 12 pennies on March 12). Maritza did something different. She saved 5 cents on the first day of the month. She then saved 5 cents more each day than she had the previous day. For the month of March, who had saved more money, and how much more money was it?

35. **Due November 4, 2019** (ref. 9A1-17) page 262, number 22.

36. **Due November 4, 2019** (ref. 9B1-3) How many numbers between 1 and 10,000 have a sum of digits of exactly 10? (For example, 334 is such a number since $3 + 3 + 4 = 10$.)

37. **Due November 13, 2019** (ref. 11A1-4) page 312, number 4.

38. **Due November 13, 2019** (ref. 11A1-5) page 312, number 5.

39. **Due November 18, 2019** (ref. 11B1-2) page 317, number 2.

40. **Due November 18, 2019** (ref. 11B2-4) I was walking down the street one day, and a jogger passed me. I was curious to know whether I could figure out how fast the jogger was running, so I started paying attention to where the jogger was. When she passed a light pole a little ways in front of me, I began to count seconds. It took me 9 seconds to get to the pole. When I reached the pole, I looked up to see that she was just passing a fire hydrant. I again counted seconds until I reached the fire hydrant, and it took me 11 seconds. When I reached the fire hydrant, she was passing a parking meter. I knew that I walked two paces in 1 second and my pace was 1 yard long. Approximately how fast, in miles per hour, was the jogger going?

41. **Due November 20, 2019** (ref. 11B2-5) Sam Action had a tough task. He was a scoutmaster and had to get a group of Boy Scouts back to their campsite after a long hike. A number of these boys would whine and complain if they were left with some of the other boys unless Sam himself was present. The whining and complaining had something to do with which soccer team the boys played on and can be summarized as follows: Any of the six Rattlers would complain if left with any of the four Thunders. Either of the two Dragons would complain if left with the Eagle. Any of the Thunders would complain if left with the Eagle or one or both Dragons. Same had to be present among any of the complainers to prevent complaining. All went well until they reached Rat-Tongue Ravine with the rickety bridge over it. Sam estimated that the bridge could safely handle only five people at a time, though he figured that it should be able to handle six people for three trips. He had been on the bridge before and knew it well. Sam needed to guide each group across to avoid capsizing the bridge, so he planned to cross the bridge with each group. He had to devise a way to get everyone across without any complaining. How did Sam arrange crossing the ravine in the least number of tries?
42. **Due November 20, 2019** (ref. 16A1-6) page 461, number 6.

43. **Due November 25, 2019** (ref. 16A1-10) page 463, number 10.

44. **Due November 25, 2019** (ref. 16A1-13) page 466, number 13.

45. **Due December 2, 2019** (ref. 11B3-1) If 30 hotdogs can feed a family of five for three meals, how many hot dogs would you need to feed just the three kids for eight meals? You can assume that adults and kids eat the same amount.

46. **Due December 2, 2019** (ref. 12B2-5) Five people from Nashville recently ordered tickets to their favorite fine arts events: jazz concert, art exhibit, symphony concert, ballet, and musical comedy. Their first names are Alan, Bev, Chris, Doreen, and Ernie. Their last names are Fillmore, Bunderson, Hatfield, Innis, and Jackson. Their occupations are publisher, engineer, reporter, doctor, and lawyer. All this information is in no particular order. Use it and the clues below to determine each person’s full name, occupation, and favorite fine arts event.

- (a) The kids of Jackson, Innis, and the jazz concert attendee all play on the same soccer team.
- (b) Among the lawyer’s clients are Alan and the art enthusiast.
- (c) Doreen and the reporter and the person who likes the symphony all have their tickets already.
- (d) Alan, Hatfield, and the jazz fan all attended the first Tennessee Titans football game together.
- (e) Neither Ernie nor the reporter has kids.
- (f) Of the five, only the doctor has never attended the symphony. The engineer, who is not Chris, has attended ballets and art exhibits, but didn’t like either.
- (g) The person who enjoys musical comedy (especially musicals written by Stephen Sondheim) and the doctor both have their tickets and are going to attend their events in the next few days.
- (h) The doctor, who is not Innis, and Ernie, who has never heard of Stephen Sondheim, went fishing the day of the first Tennessee Titans football game because both of them hate football.
- (i) Fillmore and the engineer just recently ordered their tickets and have not received them yet.

47. **Due December 4, 2019** (ref. 16A2-16) How many perfect cubes are their between 100 and 10,000,000?

48. **Due December 4, 2019** (ref. 16B2-2) How many of the integers between 1 and 600 *cannot* be represented as the sum of two or more consecutive integers? Consider $3 = 1 + 2$ and $12 = 3 + 4 + 5$. They are both examples of numbers you are *not* representable this way.

49. **Due December 9, 2019** (ref. 335E) Jill, Connor, David, and Lora performed in the musical *Oliver* last Friday, Saturday and Sunday nights. A total of 750 people attended the three performances. More people attended each night than had the attended the previous night, but the difference in attendance from one night to the next was not more than 10. Between the four of them, Jill, Connor, David, and Lora knew exactly one-third of Friday night’s audience, exactly one-fourth of Saturday night’s audience, and exactly one-fifth of Sunday night’s audience. Out of the 750 people who attended the three performances, how many people did the four of them know? What was the attendance figure for each night of the performance?

50. **Due December 9, 2019** (ref. 17B2-3) Rudy likes root beer. Sometimes he has it in the morning, sometimes in the afternoon. On vacation, Rudy had root beer on 19 different days. If there were 8 afternoons he went without root beer and 15 mornings without root beer, what is the fewest number of days he could have been on vacation?