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*.

1. **Due January 10, 2018** (ref. 0A1-1) page 9, number 1.

2. **Due January 10, 2018** (ref. 0A1-3) page 9, number 3.

3. **Due January 17, 2018** (ref. 1A1-2) page 21, number 2.

4. **Due January 17, 2018** (ref. 1A1-5) page 22, number 5.

5. **Due January 22, 2018** (ref. 1A1-13) page 24, number 13.

6. **Due January 22, 2018** (ref. 2A1-12) page 45, number 12.

7. **Due January 24, 2018** (ref. 2A1-14) page 45, number 14.

8. **Due January 24, 2018** (ref. 2A1-17) page 46, number 17.

9. **Due January 29, 2018** (ref. 3A1-5) page 65, number 5.


12. **Due January 31, 2018** (ref. 3B1-2) page 71, number 2.

13. **Due February 5, 2018** (ref. 3B2-2) Write three-letter words according to this plan: The first letter must be b or c. The second letter must be a vowel. The third letter must be chosen from t, v, or x. How many such words can be written? (These do not have to be English words, or real words from any other language for that matter.)

14. **Due February 5, 2018** (ref. 3B3-3) Lindsey, a daring catfish, went on a journey. She left her home early one morning and decided to explore the upper part of the river. Each day she swam about 5 miles upstream against the current, but as she tired and rested, she slipped back with the current about 2 miles each night. Eventually, she went just under 20 miles upstream to a fork in the river and then swam downstream in the other branch of the river. Swimming downstream was easier, since she swam at her regular speed and was carried along with the current. Then at night when she rested, the current carried her in the direction she wanted to go. She went 35 miles downstream from the fork in the river and finally reached a lake. How long from the day she left home did it take her to get to the lake? (Assume that night and day are each 12 hours long. Also assume that the current in both branches of the river is the same strength.)

15. **Due February 5, 2018** (ref. 4A1-3) page 99, problem 3.


18. Due February 7, 2018 (ref. 4B1-5) page 113, problem 5.

19. Due February 12, 2018 (ref 4B2-4) Four friends get together. One tells the truth all the time. One lies all the time. One tells the truth on odd-numbered days and lies on even-numbered days. One tells the truth on even-numbered days and lies on odd-numbered days. One day in May, they made the following statements:

   Abe: I lied yesterday.
   Blanca: Today is the twelfth.
   Carol: Yesterday’s date was even.
   Doug: Carol’s statement is true.

Which of the four friends tells the truth on even-numbered days and lies on odd-numbered days?


22. Due February 14, 2018 (ref. 5A1-17) page 138, problem 17.

23. Due February 26, 2018 (ref. 5B1-5) page 143, number 5.

24. Due February 26, 2018 (ref. 6A1-3) page 166, number 3.

25. Due February 28, 2018 (ref. 6A1-10) page 167, number 10.


27. Due March 5, 2018 (ref. 7A1-3) page 191, number 3.


29. Due March 7, 2018 (ref. 7A1-14) page 193, number 14.


31. Due March 19, 2018 (ref. 7B1-3) page 197, number 3.

32. Due March 19, 2018 (ref. 9C1-1) Without using a calculator or computer find the sum of the first 7,000 odd numbers.

33. Due March 21, 2018 (ref. 9A1-11) page 259, number 11. Also, generalize your solution to give a way to determine the last digit when the last term in the product is $2^n$.

34. Due March 21, 2018 (ref. 9B1-3) page 264, number 3.

35. Due March 26, 2018 (ref. 9B1-5) page 264, number 5.
41. Due April 11, 2018 (ref. 16B3-2) Four actors are starring in a movie. Their first names are Bill, Ted, Grim, and Don. Their last names are Preston, Logan, Reaper, and Thanes. Their shirts are red, green, yellow, or blue. The patterns are on the shirts are plain, striped, checkered, or print. Four children who watched the movie made comments about the actors. Each comment referred to all four actors.

Child 1 I saw Bill, a person in a plain shirt, Logan and a person in a green shirt.

Child 2 I saw Preston, a person wearing a blue shirt, another wearing a yellow shirt, and Ted.

Child 3 I saw Grim, a person wearing a checkered shirt, a person wearing a red shirt, and Don.

Child 4 I saw a person wearing a print shirt, a person wearing a red shirt, Grim, and Reaper.

Ted is not wearing the red shirt. Don is not wearing the plain shirt. Logan is not wearing the yellow shirt. Determine each person’s full name and color and style of shirt.

42. Due April 11, 2018 (ref. 17B3-3) Jody wanted to get back into shape, and she had a lot of yard work to do. So, she decided to combine the two projects. On the first day she dug and moved 1/2 of a wheelbarrow full of dirt. The next day she dug and moved 1/3 of a wheelbarrow full and then 2/3 of a wheelbarrow full. On the third day she dug and moved 1/4 of a wheelbarrow full, then 1/2, and then 3/4 of a wheelbarrow full as her exercise. She continued doing this, increasing the denominator by 1, starting with lighter loads as warm-ups, the coming close to a full load on the last load of the day. So, the fourth day she did 1/5, 2/5, 3/5, and 4/5 wheelbarrow loads. She did this for a total of 47 days. How many total full wheelbarrow loads of dirt did she end up digging and moving?
(a) At least one red convertible.
(b) More blue sports cars than red sports cars.
(c) Fewer convertibles than sports cars.
(d) More blue convertibles than blue sports cars.
(e) No convertible sports cars.

Unfortunately, one of the cars was destroyed in a garage fire. However, the note in the newsletter was still accurate. What is the description of the car that was destroyed?

48. Due April 23, 2018 (ref. 16B3-4) Beth loves watching wrestling on TV. She has a lot of friends who like wrestling, too. Since she watches it more than they do, she often writes a short blog post for them, detailing the results of recent wrestling matches of mutual interest. The other day she caught the tail end of a wrestling match in which a wrestler named Mango Mulch beat another wrestler named Gyruk. Gyruk was so sad that he cried. Beth wrote the blog post and used the headline:

MANGO MULCH BELTS GYRUK: WHINE

After she wrote the headline, Beth noticed that her headline contained five-letter words. The weird thing was, there is another five-letter word that shares exactly two letters with each word in the headline. What is that word?

49. Due April 25, 2018 (ref. 16B4-1) Five people attended a high school class reunion. To get there, one person traveled one hour, another person traveled for one and a half hours, another for two hours, another for two and a half hours, and the last for three hours. Three of the people came in the same car with one person driving the car and picking up the other two people at different places along the way. The other two came in a plane with one person flying the plane and picking up the other person along the way. The car and the plane traveled at a constant speed, and the plane’s speed was five times that of the car. The five people traveled a total of 1342 miles. What was the speed of the car? (Note: that the travel times do not include stops, starts, takeoffs, landings, accelerating, or decelerating. They should be ignored for this problem.)

50. Due April 25, 2018 (ref. 16B4-5) My friend Tammy is a librarian who reads one book every day. This week she is reading about computer science. The computer science books are arranged in alphabetical order by the author’s last names. It turns out that there are 13 books with authors’ names for each letter of the alphabet. Tammy has a strange way of picking out which book to read. She walks down the row of books and takes out every second one and throws it on the floor. When she gets to the end of the row, she starts over at the beginning. If she throws out the last book of the row, she skips the first book when she starts over. If she skips the last book of the row, she throws the first book on the ground when she starts over. She continues this way until there is one book left on the shelf. She gently sets it aside, cleans up the mess she made, and then takes the last book home with her to read. What is the first letter of the last name of the author of the book she will read this day?