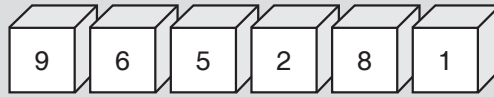In a **SumBox** puzzle, we arrange boxes so that the numbers that are next to each other always have a sum that ends in one of the target digits.

Target digits: 4, 7

EXAMPLE | Solve the SumBox puzzle on the right.

9 | 6 | 5 | 2 | 8 | 1

For each number, we find the numbers it can be next to. For example, since $9+5=1\underline{4}$ and $9+8=1\underline{7}$, the 9 can be next to 5 or 8. We list the possibilities for all six numbers below.

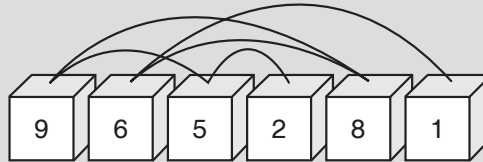The 9 can be next to 5 or 8.　　The 6 can be next to 1 or 8.

The 5 can be next to 9 or 2.　　The 2 can only be next to 5.

The 8 can be next to 6 or 9.　　The 1 can only be next to 6.

This information can be shown in a drawing like the one on the right. We connect numbers that can be next to each other.
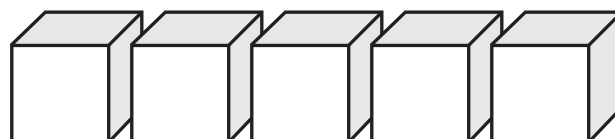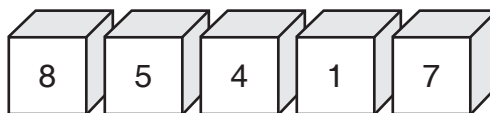
9 | 6 | 5 | 2 | 8 | 1

In our drawing, we see that 1 can only be next to 6, which must be next to 8, then 9, then 5, and finally 2. So, these boxes could be arranged in either order below.
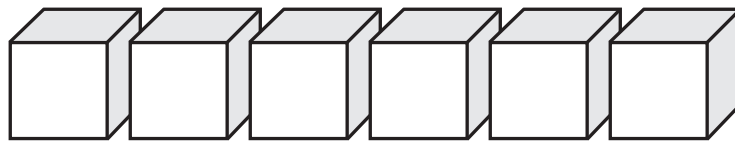
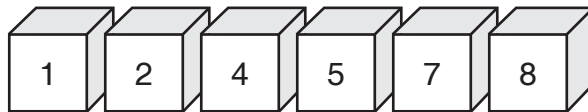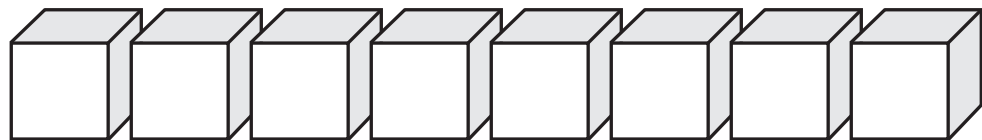1 | 6 | 8 | 9 | 5 | 2　　or　　2 | 5 | 9 | 8 | 6 | 1
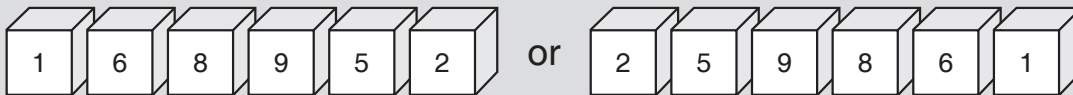
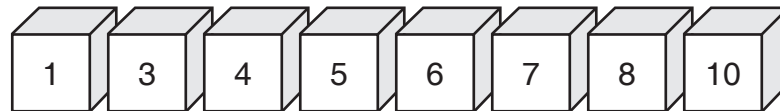**PRACTICE** | Solve each SumBox puzzle below.

78. **Target digits**: 2, 5

8 | 5 | 4 | 1 | 7

☐ | ☐ | ☐ | ☐ | ☐

PRACTICE | Solve each SumBox puzzle below.

79. **Target digits**: 2, 9

| 1 | 2 | 4 | 5 | 7 | 8 |

80. **Target digits**: 1, 8

| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 10 |

81. **Target digits**: 3, 6
★

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

PROBLEM SOLVING
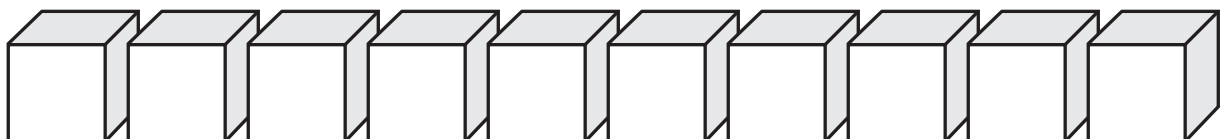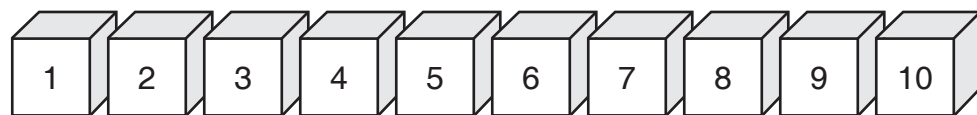
EXAMPLE | Al, Bo, and Cam meet, and everyone shakes hands. How many different handshakes are possible among all three monsters?

Drawing can help us organize the handshakes. We draw a dot for Al, Bo, and Cam. Then, we connect two dots to stand for each handshake.

Al shakes hands with Bo and Cam. So, we connect Al to Bo and to Cam.

Bo can shake hands with Al and with Cam. We already drew a line for the handshake between Bo and Al. So, we draw one more line for the handshake between Bo and Cam.

Finally, Cam can shake hands with Al and Bo. But, we already drew both of these handshakes. So, there are no more handshakes to consider.

All together, **3** different handshakes are possible among Al, Bo, and Cam.
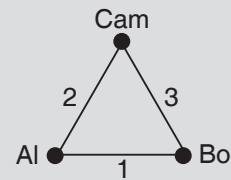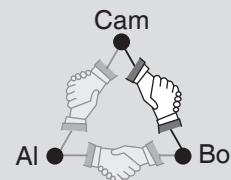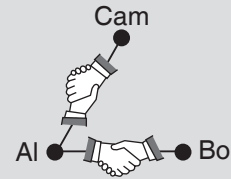
PRACTICE | Answer each question below.

82. In the example above, we saw that 3 different handshakes are possible in a group of 3 monsters. How many different handshakes are possible in a group of 4 monsters?

82. _____

PRACTICE | Answer each question below.

83. How many different handshakes are possible in a group of 5 monsters?

83. _____

84. The Hatfield triplets and the McCoy twins meet at the park. All five monsters shake hands with each other, except for Matty McCoy, who refuses to shake hands with any of the Hatfield triplets. How many handshakes are there?

84. _____

85. ★ A group of 4 monsters meet. Fred shakes 3 monsters' hands, Gary shakes 2 monsters' hands, and Holden shakes 1 monster's hand. How many monsters did Iggy shake hands with?

85. _____