

USING MODELS AND TABLES TO SOLVE PROBLEMS

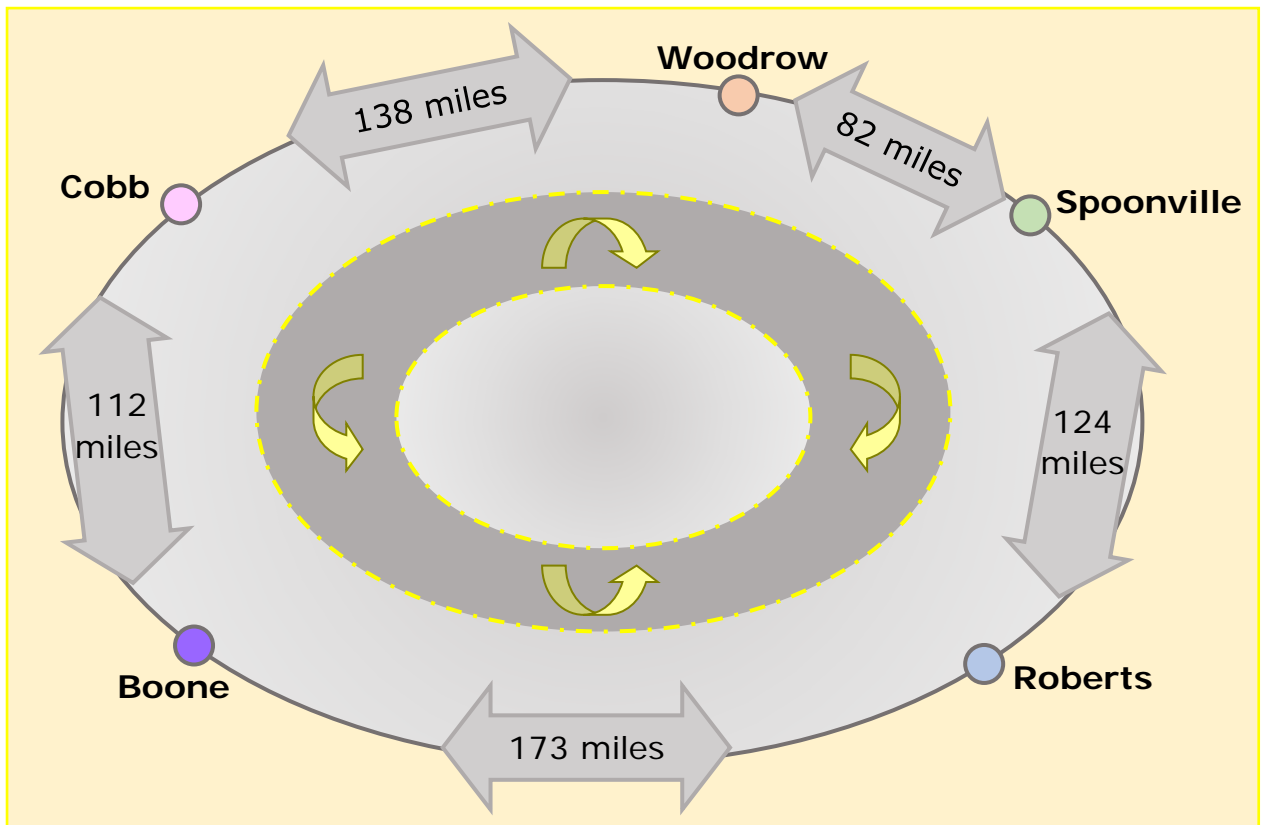


Unit Overview

Problems are often solved by using visual aids that make the problem easier to work with. In this unit, you will be solving different types of problems using objects, pictures, drawings, tables, numbers, and letters.

Pictures

Look at the picture below. Cities are listed along the circle. The number in the box represents the miles between each city.



Example:

The distance between Cobb and Woodrow is 138 miles.

The shortest distance between Cobb and Spoonville is $138 \text{ miles} + 82 \text{ miles} = 220 \text{ miles}$.

The longest distance between Cobb and Spoonville is $112 \text{ miles} + 173 \text{ miles} + 124 \text{ miles} = 409 \text{ miles}$.

Multiplication Table

Look at the multiplication table below. The numbers along the left side and the top are factors. The numbers inside are products.

Factors
↓

Factors →

X	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Use the multiplication table below to locate the product of 6 and 4. Find the row for 6 and the column for 4. The number in the square where the row and column meet is the product. The product is 24.

Column
↓

X	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Row →

Square Numbers

The product of any number multiplied by itself is called a square number. The multiplication table below shows all the square numbers to 100. Notice that the squares form a diagonal across the multiplication table. Notice also that the products on one side of the diagonal mirror the products on the other side. You will practice finding some square number factors and products in the problems.

X	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100