

Option 2: Small Group Activity

Exploring AROC Given by Tables:

The table gives the population of a town starting in 1970. The total population P is given for the number of years n after 1970. Be sure to include appropriate units in answers.

Table 1:

Number of years after 1970 n	0	6	12	18	24
Total population P	2350	2575	2866	3124	3359

a) Describe, in words, the changes in population per year for the values given in Table 1. Support your answer with math calculations.

b) For which six year period was the population increasing most rapidly? Least rapidly? Make sure to include appropriate units for any mathematics.

c) Estimate $P(9)$ using at least two methods.

d) Does the table make you think that the population has a limiting value? Support your answer.

e) Using the data given, how would you estimate $P(29)$? Show your calculations and explain this process.

Table 2:

Number of years after 1970 n	0	5	12	17	24
Total population P	2350	2575	2866	3124	3359

a) Describe, in words, the changes in population per year for the values given in Table 2. Support your answer with math calculations.

b) For which interval was the population increasing most rapidly? Least rapidly?

c) Estimate $P(9)$. Do your methods from Table 1 match how you found $P(9)$ for Table 2? Why or why not?

d) Does the table make you think that the population has a limiting value? Support your answer.

e) Using the data given, how would you estimate $P(29)$? Show your calculations and explain this process.

Table 3:

Number of years after 1970 n	0	5	14	20	24
Total population P	2350	2575	2866	2974	2982

a) Describe, in words, the changes in population per year for the values given in Table 3. Support your answer with math calculations.

b) For which interval was the population increasing most rapidly? Least rapidly?

c) Estimate $P(9)$. Do your methods from Table 1 match how you found $P(9)$ for Table 3? Why or why not?

d) Does the table make you think that the population has a limiting value? Support your answer.

e) Using the data given, how would you estimate $P(29)$? Show your calculations and explain this process.

Table 4:

Number of years after 1970 n	0	7	12	20	24
Total population P	3425	2900	2640	2456	2436

a) Describe, in words, the changes in population per year for the values given in Table 4. Support your answer with math calculations.

b) For which interval was the population decreasing most rapidly? Least rapidly?

c) Estimate $P(9)$. Do your methods from Table 1 match how you found $P(9)$ for Table 4? Why or why not?

d) Does the table make you think that the population has a limiting value? Support your answer.

e) Using the data given, how would you estimate $P(29)$? Show your calculations and explain this process.

Table 5:

Number of years after 1970 n	0	6	15	18	24
Total population P	1500	1758	2145	2274	2532

a) Describe, in words, the changes in population per year for the values given in Table 5. Support your answer with math calculations.

b) For which interval was the population increasing most rapidly? Least rapidly?

c) Estimate $P(9)$. Do your methods from Table 1 match how you found $P(9)$ for Table 5? Why or why not?

d) Does the table make you think that the population has a limiting value? Support your answer.

e) Using the data given, how would estimate $P(29)$? Show your calculations and explain this process.