

11

In October of 1999, the population of the world was 6 billion.

How much time would it take to meet every person for one minute?

ANSWER: about 12,000 years (11,415 years, 191 days, 16 hours)

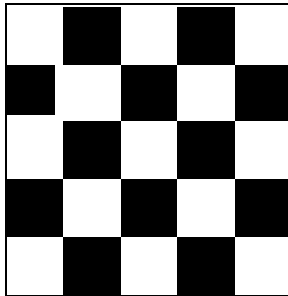
COMMENTS & EXTENSIONS: One solution is to figure out how many minutes are in a standard year ($365 \times 24 \times 60 = 525,600$). This would let you meet a million people about every 2 years, so you would meet a billion people every 2,000 years, or 6 billion in 12,000 years.

WRITING PROMPT: Explain how you arrived at your answer.

ORAL QUESTION: About how long could you spend with each person and still meet everyone?

12

Here is part of a checkerboard. How many squares are shown here? (Hint: not 25)



ANSWER: 55 squares

COMMENTS & EXTENSIONS: Guide students to solve smaller problems first. How many squares are 1×1 ? [25] 2×2 ? [16] 3×3 ? [9] 4×4 ? [4] 5×5 ? [1] Add those intermediate results to find the total number of squares. Can students use some of the patterns they see here to answer the more difficult question of how many squares are on an 8×8 checkerboard? [204]

13

a. Emily said that she had multiplied three one-digit numbers and got 20.
Is this possible? Explain.

b. Rakesha multiplied three one-digit numbers and got 65.
Is this possible? Explain.

ANSWER: a. Yes, $2 \times 2 \times 5 = 20$. b. No, $65 = 13 \times 5$. Thirteen is prime, so there are no one-digit numbers that multiply to get 13.

COMMENTS & EXTENSIONS: What is the greatest product of three one-digit numbers? [729] Three different one-digit numbers? [504] What if Parts a and b had specified three "different" one-digit numbers?