WORKSHEET

Arithmetic series extension

1 A piano company can manufacture 20 000 pianos per year. In order to compete with the rising demand for pianos, the company needs to begin producing an additional number of pianos per year, every year. If in 10 years, it is expected that 50 000 pianos will be needed, how many more pianos does the company need to manufacture in order to be ready for the demand in 10 years time?

2 Melanie is an architect who wants to design a fan-shaped auditorium. Every row will have 3 seats more than the row in front. There is only enough money in the budget for 3500 seats. If the first row needs to have 20 seats, how many rows can Melanie fit in the auditorium before the budget is exceeded?

3 A game of Mathsball is won by scoring more points than your opponent. Points are gained when an error is made on the opposition's behalf. Similar to golf, a handicap is used for a fairer system of scoring against two opponents with different mathematical skillsets.

Nira is playing Mathsball with her friend Sam. She ends up gaining a score of 22, including her handicap of 4. If Sam made 9 errors, and each error resulted in the same number of points going towards Nira, how many points was each error worth?

4 Tyson works at a supermarket. He wants to stack cans to make a triangle, where the top layer of the triangle has only one can, and every subsequent row down has one additional can. How many cans will Tyson need if the base is to be 20 cans long?

Answers

1 3000 pianos
2 42 rows
3 2 points
4 210 cans

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