

Calculators, computers and Wolfram Alpha are permitted

3.14. This question is about throwing a pie in your face.



Bai eats pies at a rate of 500,000 pies per year. Will eats 1 pie per minute.

(a) Who is the faster eater? [1]

(b) The faster eater can eat 1 slice every 3 seconds. How many slices in a pie? [1]

(c) Julian and James decide to stack some pies. Julian has 10 more pies than James, but he takes 5 minutes longer. They stack at the same constant rate. Find the rate of stacking. [1]

(d) Bertie and Belinda bring two pies to the Math Club. The radiuses of the two pies add up to 66 cm. The radius of one pie is the reversed digits of the radius of the other pie. Find all possible radiuses for the two pies. [3]

(e) Jerry brings a pie with a radius of 10π cm which placed in an equilateral triangular box. 16π % of the box is covered by the pie. Find the side length of the box. [1]

(f) Ten people bring a different pie to the Math Club, and each of them is asked to exchange their pie with someone else. However, nobody is allowed to exchange pies with a person with a smaller pie. How many exchanges will occur? [1]
