

2001 Mathematics Teams Challenge

YEAR 8 Team Questions

Time Allowed:

Calculators Allowed

Total Points: 50.....

T1 (3 points)

Margie and John share a mowing business. One particular yard takes John 30 minutes while Margie does the same yard in 20 minutes. If they work together at their respective rates, how long should it take them to mow the yard?

T2 (3 points)

How many odd numbers of five different digits can be formed with the digits 1, 2, 3, 4, 5?

T3 (4 points)

Two standard dice are thrown simultaneously and the sum of the two upper faces is calculated. What is the probability that the result is a prime number?

T4 (4 points)

If the width of a rectangle is decreased by 20%, by how much should the length be increased to keep the area the same?

T5 (3 points)

On Saturday mornings, Mark earns $\frac{4}{5}$ of what Randal earns. Together, they earn \$63.00. How much does Randal earn?

T6 (3 points)

A four wheel drive vehicle averages 12 ltrs per 100 kilometres fuel consumption. If the driver paid 85 cents per litre for fuel, how far could he travel for \$20? (Round to the nearest kilometre)

T7 (5 points)

An open metal feed trough in the shape of a rectangular prism has a volume of 216m^3 . If it is twice as long as it is wide and twice as wide as it is high, calculate the surface area of the metal needed to build the trough.

T8 (5 points)

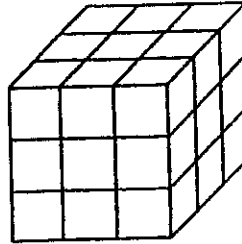
When new, a fitted rubber bicycle tyre has an outside diameter of 60cm. After three months, the tread had worn down 3mm. How many more times (to the nearest whole number) will the wheel now go around in one kilometre? (let $\pi = 3.14$)

T9 (5 points)

Peter and Sue walk from their home to the park each day for exercise. Sue walks twice as fast as Peter. If they start off together and Sue immediately turns back after reaching the park, what fraction of the distance from home to the park has Peter walked when they meet?

T10 (5 points)

A wooden cube has all its faces painted orange. It is then cut into 27 smaller identical cubes as shown. If these cubes are placed in a hat, shaken, and one drawn at random, it would most likely have how many orange faces?



T11 (5 points)

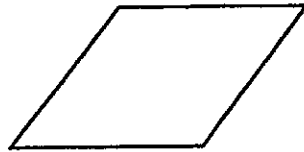
If all these quadrilaterals have the same perimeter, which one will have the greatest area?



Rectangle



Square



Rhombus



Trapezium

T12 (5 points)

ABCD is a square and X, Y and Z are mid points of the sides AB, BC and AD respectively. If the area of ABCD is 128cm^2 , find the area of the shaded portion.

