Term Test A version 2

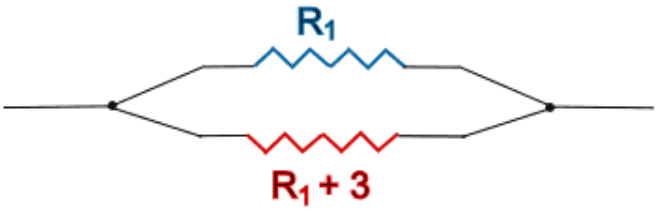
(1) [5 points] Solve the equation.

$$\frac{4+x}{2} - \frac{3x-2}{5} = 2$$

(2) [5 points] Two train stations A and B are 420 kilometres apart. The first train leaves A at v008[1] going towards B. The second train leaves B at v009[1] going towards A. The velocity of the first train is v010[1] less than the velocity of the second train. At v011[1] the trains are still v012[1] kilometres apart. Calculate the speed of the two trains and when they will meet. Use $v \cdot t = s$ (velocity times time equals distance).

(3) [5 points] The formula to work out the total resistance R_T given two resistors R_1 and R_2 in parallel as in the diagram is

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$$



The total resistance has been measured at 2 ohms, and one of the resistors is known to be 3 ohms more than the other. Ohm is the unit for resistance, and only a positive number of ohms makes sense. Calculate R_1.

(4) [5 points] Suppose a car can run on ethanol and gas and you have a 15 gallons tank to fill. You can buy fuel that is either 30 percent ethanol or 80 percent ethanol. How much of each type of fuel should you mix so that the mixture is 40 percent ethanol?

(5) [5 points] You have 6 liters of water that have 20 percent strawberry juice. How many liters of a 80 percent strawberry juice should be added to the mixture to make 75 percent strawberry juice?