Term Test A version 2

(1) [5 points] Solve the equation.

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

(2) [5 points] Rewrite the expression as a single logarithm,

$$\frac{1}{3}\log(2x+1) + \frac{1}{2}[\log(x-4) - \log(x^4 - x^2 - 1)]$$

(3) [5 points] Rewrite so that there is no logarithm of a product, quotient, root, or power,

$$\ln \frac{10^x}{x(x^2+1)(x^4+2)}$$

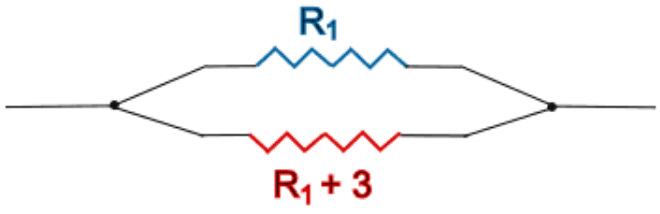
(4) [5 points] You have 6 liters of water that have 20 percent strawberry juice. How many liters of a 80 percent strawberry juice should be added to the mixture to make 75 percent strawberry juice?

(5) [5 points] Solution X is a 27% salt solution and Solution Y is a 20% salt solution. How much of each is needed to make 42 gallons of a 25% salt solution?

(6) [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.