

Problems of the Month

March 2016

General Problem:

Suppose a biology class meets Monday, Wednesday, Friday for 50 minutes each day, while an education class meets Thursday nights for 2 hours and 50 minutes. The education class has a 15-minute break in the middle of class, however.

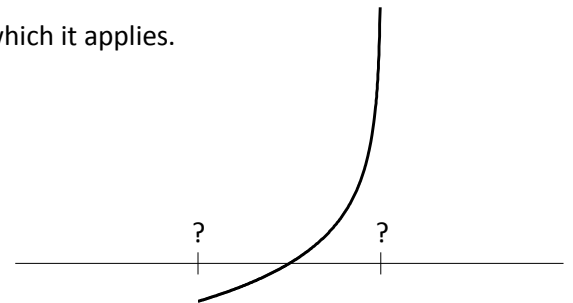


Which class has more class-time each week, and how much longer does it meet? Express your answer as a percentage.

Calculus Problem:

Verify the identity below, and find the interval of convergence on which it applies.

$$\sum_{i=1}^{\infty} \frac{(x-3)^n}{n} = \ln\left(\frac{1}{4-x}\right)$$



Challenge Problem:

Find a triangle, quadrilateral, and pentagon with integer side lengths whose areas form a set of three consecutive positive integers. Make the areas as small as possible subject to these constraints. Report your answer by giving the areas of each figure, together with the side lengths for those figures.

