Dear 454 Friends,

Only you can save the high school! Begin with the problems on the back of this page, and then the sequence of numbers below will lead you on the right path. Good luck on your quest - I'm counting on you! -R.A.

3

8

5

3

11

0

19

20

1

16

12

5

18

PROBLEM SET

Problem 1. If
$$f'(c) = \lim_{x \to c} \frac{x^2 - 3x - c^2 + 3c}{x - c} = -1$$
find the value of c.

Problem 2. Evaluate the limit:
$$\lim_{x \to 5} \frac{\tan(x - 5)\sin(3x - 15)}{x^2 - 10x + 25}$$

Problem 3. Evaluate the limit:
$$\lim_{x \to 0} \frac{10x + 4\sin x}{2x}$$

Problem 4. Evaluate the limit:
$$\lim_{\theta \to 0} \frac{\cos \theta - 1}{\sin \theta}$$