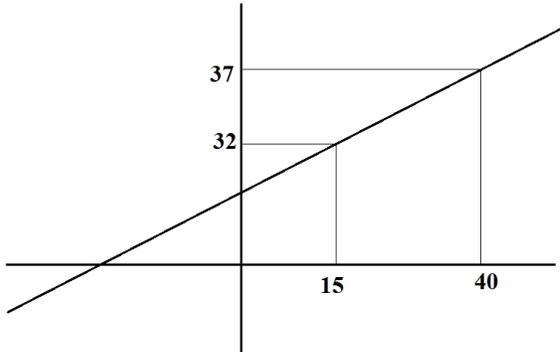


YOUR NAME: \_\_\_\_\_

George Voutsadakis

Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [2 points] Find an equation for the line shown in the figure.



2. [4 points] In 2010, a stamp collector had 1500 stamps in his collection. By 2022, the number had increased to 6300.
- (a) Assuming a linear trend, find the number  $S(t)$  of stamps in his collection  $t$  years after 2010.

- (b) Which year is the number of stamps in the collection predicted to reach the 10,000 mark?

3. [4 points] A line  $\ell_1$  passes through the points  $(-5, 4)$  and  $(7, -2)$ . A line  $\ell_2$  is perpendicular to  $\ell_1$  and passes through  $(1, 10)$ . Find an equation for the line  $\ell_2$ . Show clearly all steps.