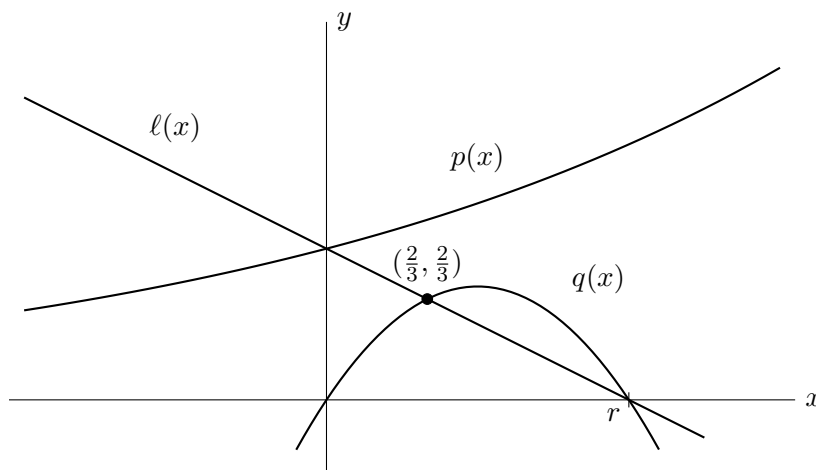


2. [4 points] Three functions,  $\ell(x)$ ,  $q(x)$ ,  $p(x)$  are graphed below.



These functions satisfy the following properties:

- The function  $\ell(x)$  is linear with slope  $-\frac{1}{2}$ .
- The function  $p(x)$  is exponential.
- The function  $q(x)$  is quadratic with one  $x$ -intercept at  $x = 0$  and the other at  $x = r$ .
- The graphs of  $q(x)$  and  $\ell(x)$  intersect once at the point  $(\frac{2}{3}, \frac{2}{3})$ , and again at  $x = r$ .

Write the correct number in each blank. Your answers should be **exact** and should not include any letters.

- (i) The average rate of change of  $q(x)$  between  $x = \frac{2}{3}$  and  $x = r$  is   $-\frac{1}{2}$
- (ii)  $r =$    $2$
- (iii)  $p(0) =$    $1$
- (iv)  $\lim_{x \rightarrow -\infty} p(x) =$    $0$

3. [3 points] The following table gives values of the variables  $A$ ,  $B$  and  $C$ :

$A$	1	2	1	4
$B$	-3	0	2	1
$C$	7	6	5	4

Circle all of the following that could be true.

$A$  is a function of  $B$ .

$C$  is a function of  $A$ .

$B$  is a function of  $C$ .

None of these.