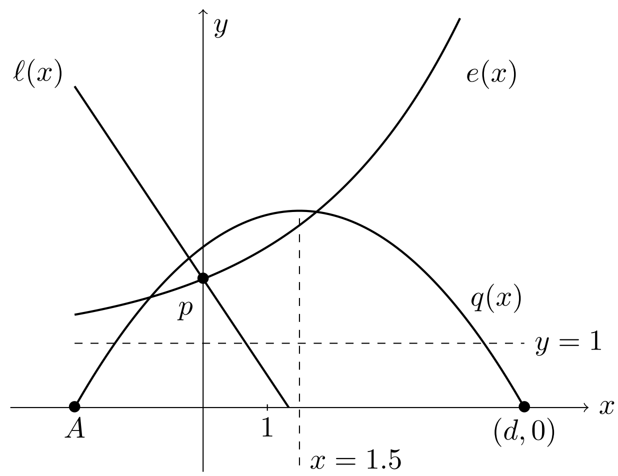
10. [10 points] The graph below shows the functions $\ell(x), q(x)$ and $e(x)$. The letters k, p, d are unknown constants. You do not need to show your work for this problem.

- $\ell(x)$ is a linear function with formula $\ell(x) = -kx + p$.
- $\ell(x)$ has an x-intercept between 1 and 1.5.
- $e(x)$ is a transformation of an exponential function with growth **factor** k.
- $e(x)$ has a horizontal asymptote $y = 1$.
- $q(x)$ is a quadratic function with a zero at $(d, 0)$.
- The axis of symmetry of $q(x)$ is at $x = 1.5$.



a. [6 points] Circle **one** correct answer.

i.[2 points] A possible formula for $e(x)$ is:

$pk^x + 1$ $\qquad$ pk^x $\qquad$ $p(1+k)^x + 1$ $\qquad$ $(p-1)k^x + 1$ $\qquad$ None of these

ii.[2 points] The x-intercept of the function $\ell(x)$ is:

$\frac{p}{k}$ $\qquad$ $\frac{k}{p}$ $\qquad$ p $\qquad$ 1 $\qquad$ None of these

iii.[2 points] The point A is the other zero of $q(x)$. The coordinates of point A are:

$(-d, 0)$ $\qquad$ $(0, -d)$ $\qquad$ $(d - 1.5, 0)$ $\qquad$ $(3 - d, 0)$ $\qquad$ None of these

b. [4 points] If $q(x) = ax^2 + bx + c$ for some constants a, b and c, rank the quantities $p, 0, k, 1, a$ in ascending order:

________ < ________ < ________ < ________ < ________