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:

\[
\begin{align*}
pk^x + 1 & \quad pk^x & \quad p(1 + k)^x + 1 & \quad (p - 1)k^x + 1 & \quad \text{None of these}
\end{align*}
\]

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

\[
\begin{align*}
\frac{p}{k} & \quad \frac{k}{p} & \quad p & \quad 1 & \quad \text{None of these}
\end{align*}
\]

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

\[
\begin{align*}
(-d, 0) & \quad (0, -d) & \quad (d - 1.5, 0) & \quad (3 - d, 0) & \quad \text{None of these}
\end{align*}
\]

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:

_______ < _______ < _______ < _______ < _______