① (a) $\lim\limits_{x\to 0} \frac{e^x-1}{x} = \lim\limits_{x\to 0} \frac{e^x}{1} = \boxed{1}$

(b) $\lim\limits_{x\to\infty} \frac{x}{e^x} = \lim\limits_{x\to\infty} \frac{1}{e^x} = 0$

(c) $\lim\limits_{x\to\infty} x^2e^{-x} = \lim\limits_{x\to\infty} \frac{x^2}{e^x} = \lim\limits_{x\to\infty} \frac{2x}{e^x} = \lim\limits_{x\to\infty} \frac{2}{e^x} = 0$

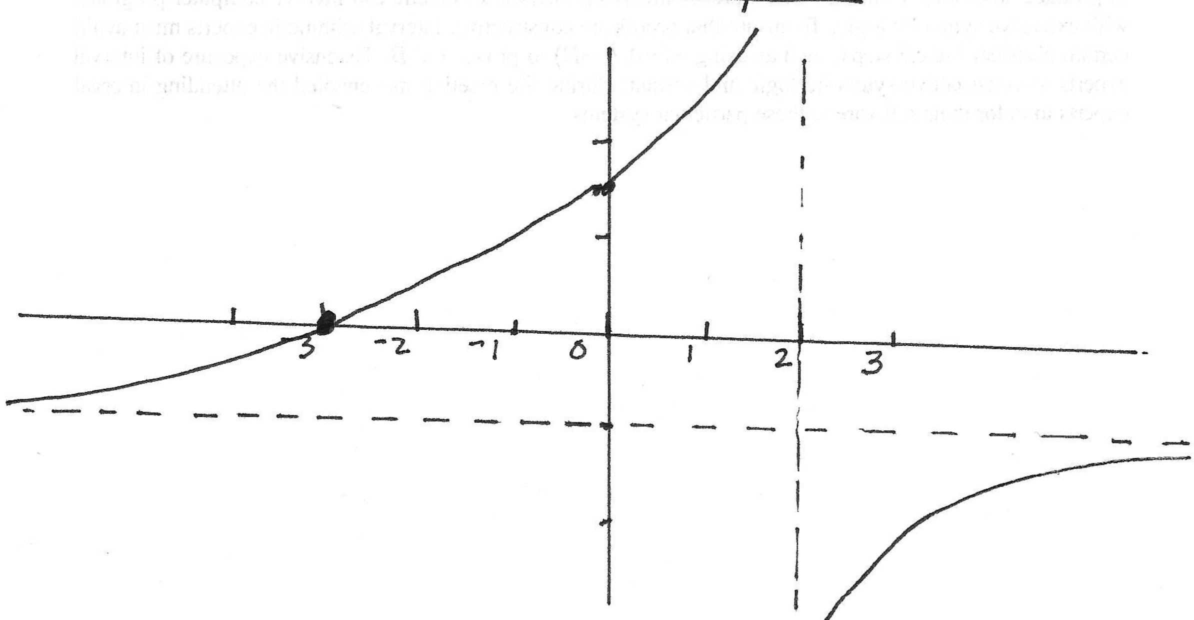
② The y-intercept is $\boxed{R(0) = \frac{3}{2}}$. The x-intercept is where $3+x=0 \Rightarrow \boxed{x=-3}$ The only vertical asymptote is where $2-x=0$, at $\boxed{x=2}$. Any extrema occur where

$R' = [(3+x)(2-x)^{-1}]' = (2-x)^{-1} - 1(2-x)^{-2}(-1)(3+x)$

$= \frac{(2-x)+(3+x)}{(2-x)^2} = \frac{5}{(2-x)^2} = 0$, not possible, so there are $\boxed{\text{no local extrema}}$. Concave up and concave down regions are determined by

$R'' = [5(2-x)^{-2}]' = -10(2-x)^{-3}(-1) = \frac{10}{(2-x)^3}$.

$\frac{10}{(2-x)^3} > 0$ for $x<2$, and $\frac{10}{(2-x)^3} < 0$ for $x>2$. Thus, the graph is $\boxed{\text{concave up for } x<2}$ and concave down for $x>2$. $\lim\limits_{x\to\infty} \frac{3+x}{2-x} = -1 = \lim\limits_{x\to-\infty} \frac{3+x}{2-x}$, so there is only one $\boxed{\text{horizontal asymptote, at } y=-1}$



(3) Critical points of f occur at

$f'(x) = 3x^2 - 3 = 3(x^2-1) = 0$, at

$x=-1$ and $x=1$. $x=-1$ is the only critical point in the interval being considered. Thus, the absolute maximum is 3 (at $x=-1$), and the absolute minimum is -1 (at $x=-2$).

x	$f(x)$
-2	-1
0	1
-1	3

(4) The average rate of change is $\frac{f(2)-f(0)}{2-0} = \frac{2-0}{2-0} = 1$.

$f'(x) = 3x^2 - 3 = 1$ where $3x^2 = 4$, $x^2 = \frac{4}{3} \Rightarrow x = \pm\frac{2}{\sqrt{3}}$.

Thus, $\boxed{c = \frac{2}{\sqrt{3}}}$.