7. [12 points] For each question below, circle all correct answers. There could be more than one correct answer for each question. Unclear answers will be marked incorrect.

a. [2 points] If A and B are positive constants, then $\lim_{t \to \infty} (A - Be^{-t}) =$

$\boxed{A}$ $-B$ $A - B$ B 0 none of these

b. [2 points] If $y = f(x)$ has a vertical asymptote at $x = -2$, then $y = 2f(5(x + 1)) - 3$ has a vertical asymptote at

-15 $-\frac{1}{5}$ -7 -4 $-\frac{3}{5}$ $\boxed{\text{none of these}}$

c. [2 points] The function $y = 3\cos(2x)$

is odd $\boxed{\text{is even}}$ $\boxed{\text{has period } \pi}$ has period 2

is not periodic   is invertible   has none of the attributes listed

d. [2 points] If a right triangle has an angle of 55 degrees and the side opposite that angle has length 4, the hypotenuse has length

$4\sin(35°)$ $\frac{4}{\sin(35°)}$ $4\sin(55°)$ $\boxed{\dfrac{4}{\cos(35°)}}$

$\boxed{\dfrac{4}{\sin(55°)}}$ $4\sin(35°)$ none of these

e. [2 points] Which of the following functions dominate $x^4 - 3000x$ as $x \to \infty$?

$\boxed{\left(\dfrac{9}{8}\right)^x}$ $\boxed{x^5}$ $100\log(x)$

$3000(\ln(2))^x$ $5000x^2$ none of these

f. [2 points] Which of the following functions are dominated by $x^4 - 3000x$ as $x \to \infty$?

$\left(\frac{9}{8}\right)^x$ x^5 $\boxed{100\log(x)}$

$\boxed{3000(\ln(2))^x}$ $\boxed{5000x^2}$ none of these