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 $\lim\limits_{t \to \infty} (A - Be^{-t}) =$

A $\qquad$ $-B$ $\qquad$ $A - B$ $\qquad$ B $\qquad$ 0 $\qquad$ 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 $\qquad$ $-\frac{1}{5}$ $\qquad$ -7 $\qquad$ -4 $\qquad$ $-\frac{3}{5}$ $\qquad$ none of these

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

is odd $\qquad$ is even $\qquad$ has period π $\qquad$ has period 2

is not periodic $\qquad$ is invertible $\qquad$ 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

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

$\frac{4}{\sin(55°)}$ $\qquad$ $4\sin(35°)$ $\qquad$ none of these

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

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

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

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

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

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