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

- $A$
- $-B$
- $A - B$
- $B$
- $0$
- 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

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

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

- is odd
- is even
- 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

- $4\sin(35^\circ)$
- $\frac{4}{\sin(35^\circ)}$
- $4\sin(55^\circ)$
- $\frac{4}{\cos(35^\circ)}$
- $\frac{4}{\sin(55^\circ)}$
- $4\sin(35^\circ)$
- none of these

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

- $(\frac{9}{5})^x$
- $x^5$
- $100\log(x)$
- $3000\ln(2)^x$
- $5000x^2$
- none of these

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

- $(\frac{9}{5})^x$
- $x^5$
- $100\log(x)$
- $3000\ln(2)^x$
- $5000x^2$
- none of these