BC CALCULUS PRACTICE 7R **Name:** _____ **Period** _____

Aisle _____ pg. 507 – 7, 8, 9, 11, 12, 13, 14

Show all necessary work neatly.

7. (a) Set up a sum of definite integrals that represents the total shaded area between the curves $y = f(x)$ and $y = g(x)$ in the accompanying figure.

(b) Find the total area enclosed between $y = x^3$ and $y = x$ over the interval $[-1, 2]$.

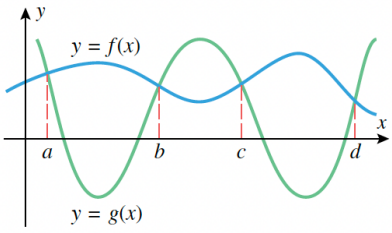


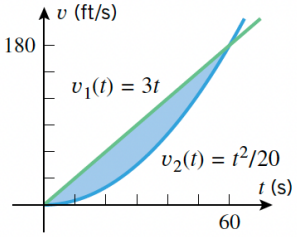
Figure Ex-7

8.

The accompanying figure shows velocity versus time curves for two cars that move along a straight track, accelerating from rest at a common starting line.

(a) How far apart are the cars after 60 seconds?

(b) How far apart are the cars after T seconds, where $0 \le T \le 60$?



9. Let R be the region enclosed by the curves $y = x^2 + 4, y = x^3$, and the y-axis. Find and evaluate a definite integral that represents the volume of the solid generated by revolving R about the x-axis.

11. Find the volume of the solid whose base is the region bounded between the curves $y = \sqrt{x}$ and $y = \frac{1}{\sqrt{x}}$ for $1 \le x \le 4$ and whose cross sections perpendicular to the x-axis are squares.

12. Consider the region enclosed by $y = \sin^{-1} x$, $y = 0$, and $x = 1$. Set up, but do not evaluate, an integral that represents the volume of the solid generated by revolving the region about the x-axis using

(a) disks

(b) cylindrical shells

13. Find the arc length in the second quadrant of the curve $x^{2/3} + y^{2/3} = 4$ from $x = -8$ to $x = -1$.

14. Let C be the curve $y = e^x$ between $x = 0$ and $x = \ln 10$. Set up, but do not evaluate, an integral that represents the arclength C by integrating

(a) with respect to x

(b) with respect to y