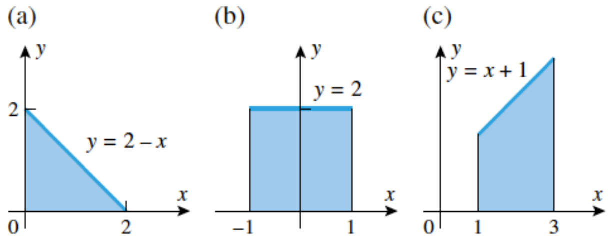
BC CALCULUS PRACTICE 6.6A **Name:** ______________________________ **Period** ________

Aisle: __________ 6.6: pg. 406 – 1, 5-40 multiples of 5, 43, 45, 49

1. In each part, use a definite integral to find the area of the region, and check your answer using an appropriate formula from geometry.



In Exercises 3–6, find the area under the curve $y = f(x)$ over the stated interval.

5. $f(x) = 3\sqrt{x}$; [1,4]

In Exercises 7–19, evaluate the integrals using Part 1 of the Fundamental Theorem of Calculus.

10.

$$\int_{-1}^{2} 4x(1 - x^2)\,dx$$

15.

$$\int_{-\pi/2}^{\pi/2} \sin\theta\, d\theta$$

20.

$$\int_{1/2}^{1} \frac{1}{2x}\,dx$$

25.

$$\int_{1}^{4} \left(\frac{1}{\sqrt{t}} - 3\sqrt{t}\right) dt$$

30

(a) $\int_{-1}^{2} \sqrt{2 + |x|}\,dx$

(b)

$$\int_{0}^{\frac{\pi}{2}} \left|\frac{1}{2} - \cos x\right| dx$$

35. Use a calculating utility to find the midpoint approximation of the integral using $n = 20$ subintervals, and then find the exact value of the integral Part 1 of the Fundamental Theorem of Calculus.

$$\int_1^3 \frac{1}{x^2}\,dx$$

40. Find the area that is above the x-axis but below the curve $y = x - x^2$. Make a sketch of the region.

43. Sketch the curve and find the total area between the curve and the given interval on the x-axis.
$y = x^2 - x$; $[0,2]$

45. Sketch the curve and find the total area between the curve and the given interval on the x-axis.
$y = 2\sqrt{x+1} - 3$; $[0,3]$

49. Find the area enclosed by the graphs of $y = \frac{1}{\sqrt{1-x^2}}$, $y = 0, x = 0$, and $x = 0.8$.

(a) Show that the exact area is $\sin^{-1} 0.8$.