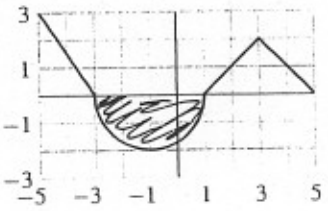
MATH 105 QUIZ 14 DECEMBER 3, 2007

NAME: KEY

YOUR GRADE IS BASED ON THE PROCESS AS WELL AS THE FINAL RESULT. SHOW ALL YOUR STEPS CLEARLY SO YOU WILL BE ELIGIBLE FOR THE MOST PARTIAL CREDIT. YOU MAY USE A CALCULATOR, BUT NO NOTES, BOOKS, OR OTHER STUDENTS. GOOD LUCK!

1.) (5 pts.) Using the graph of f shown, compute $\int_{-3}^{1} f$.

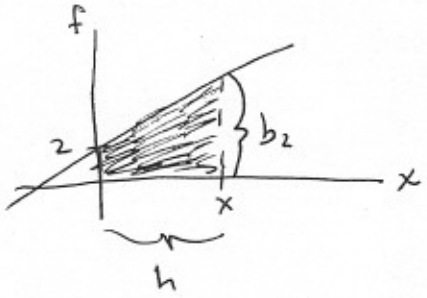


Semicircle area: $\frac{1}{2}\pi r^2$

$r = 2$, so: $\frac{1}{2}\pi(2)^2 = 2\pi$

Signed area, below x-axis: $\boxed{-2\pi}$

2.) (5 pts.) Let $f(x) = 3x + 2$. Find a formula for $F(x) = \int_0^x f(t)\,dt$, using area under the curve.



$b_1 = 2$

$b_2 = 3x+2$

$h = x$

$A = \frac{1}{2}(b_1 + b_2)\,h$

$= \frac{1}{2}(2 + (3x+2))(x)$

$= \frac{1}{2}(3x+4)(x)$

$= \frac{3}{2}x^2 + 2x$