Math 2250, Fall 2015, Practice Sheet for Exam 3

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1. Calculate the definite integrals
   a.
   $$\int_3^7 5dx$$
   b.
   $$\int_0^3 xdx$$
   c.
   $$\int_0^{\pi/2} (2x\sin x + 3)dx$$

2. Calculate the following indefinite integrals
   a.
   $$\int 4\sqrt{x}dx$$
   b.
   $$\int 4\sqrt{x-4}\,dx$$
   $$\int 4\ln(\sqrt{x})dx$$
   c.
   $$\int x^2e^x dx$$
   d.
   $$\int x^3e^{x^2}dx$$
   e.
   $$\int xe^{x^2}dx$$
   f.
   $$\int \sin^5(x+3)dx$$
   g.
   $$\int \arcsin x dx$$

3. approximate the integral $\int_2^4 (2x+3)dx$ using 4 rectangles and left endpoints

4. Compute the area bounded by the graph of $y = \sin x$ and the x-axis, for $0 \leq x \leq 2\pi$.

5. Suppose that $F(x) = \int_0^x \sqrt{4+3t^2}dt$. Compute $F'(4)$.

6. Suppose that $G(x) = \int_0^{x^2} \sqrt{4+3t^2}dt$. Compute $G'(2)$.