MATH 6 – RECITATION WORKSHEET 1
3 FEBRUARY 2012

Our main activity today will be to compute the area of a strangely shaped region. You can see the graph on the attached page. If you finish your group's part early, you can work on the practice problems on the back.

1. In your group, come up with a plan to find the area in terms of definite integrals of the four functions $f_1(x) = -x^2 + 10x$, $f_2(x) = 6 * \left(\frac{x}{2}\right)^{3/2}$, $f_3(x) = -x^3 + 4x^2 + 3x - 8$ and $f_4(x) = 5\sqrt{x} - 6$. Be sure to include the limits.

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2. Compute your group's definite integral.

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3. Now that we've shared all our integrals, compute the area of our region.

Here are some extra practice problems. Identify the kind of problem (indefinite integral, definite integral, Riemann sum, integration by substitution) first.

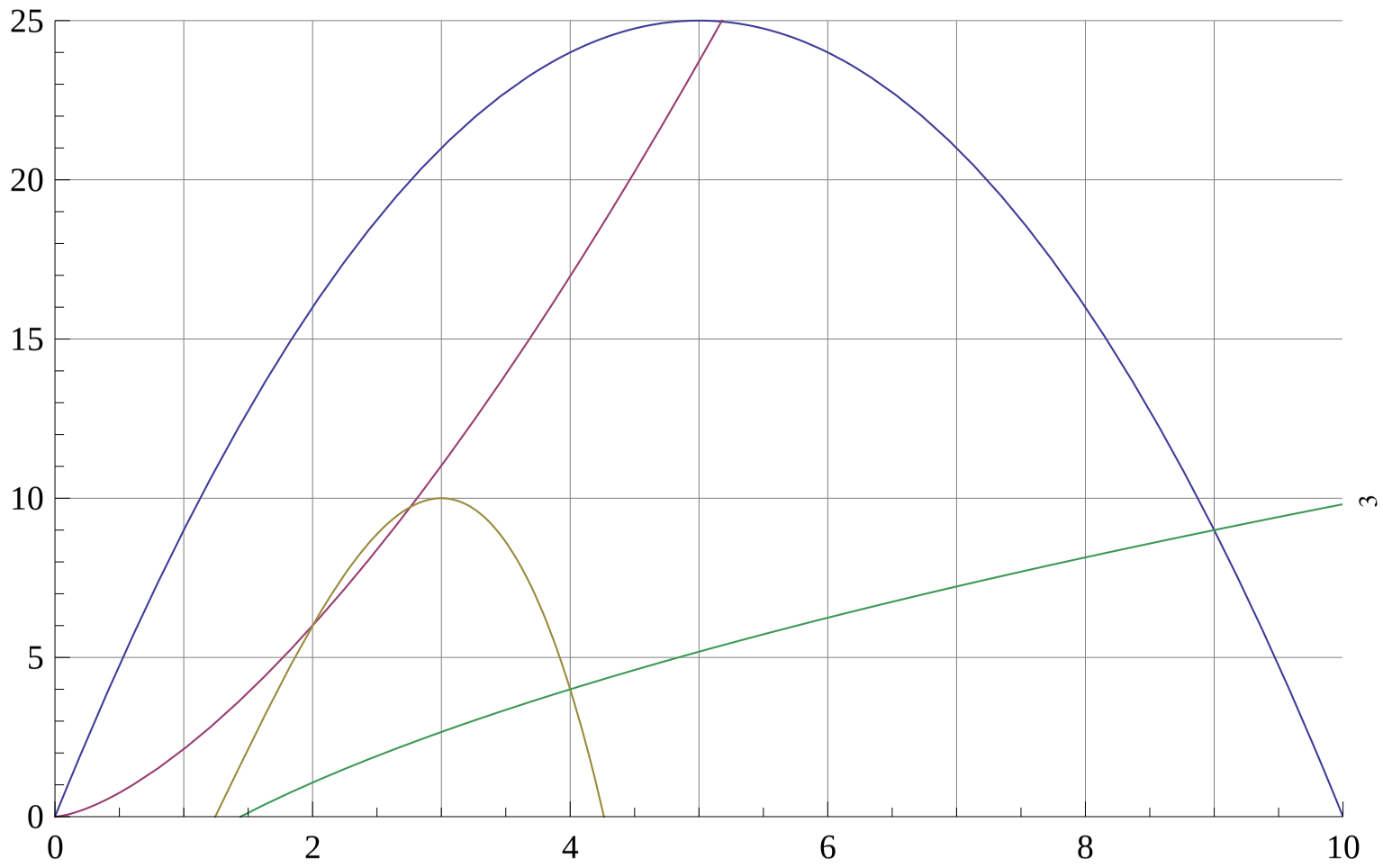
1. Compute $\int \sqrt{25-x^2}(-2x)\,dx$.

2. Estimate $\int_1^5 \ln(x)\,dx$ with four rectangles of equal width.

3. Compute $\int \dfrac{t^2+5t-8}{\sqrt{t}}\,dt$.

4. Compute $\int x^3(x^4+2)^2\,dx$.

5. Suppose a car moves with velocity $v(t) = 60\sqrt{t}$ miles per hour from time $t = 0$ to time $t = 1$. How far does the car go in that hour? (Hint: Let $y(t)$ give the position of the car at time t. How are $y(t)$ and $v(t)$ related?)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