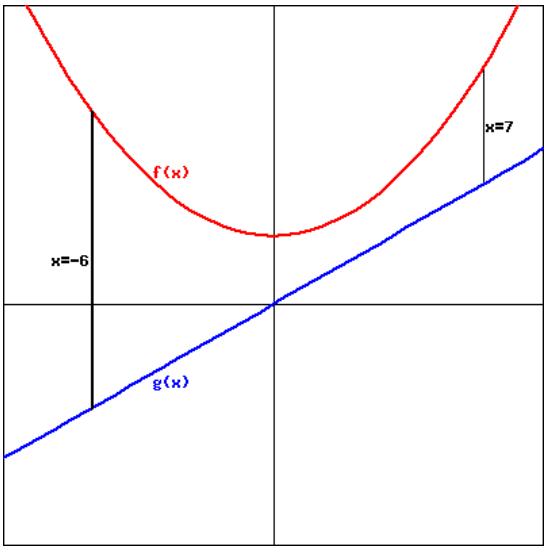
UMass Boston - Math 140 - Summer 2007 **Guest Student**
WeBWorK assignment 18-AreaCurves
Due: 08/20/2007 at 10:00pm EDT

1. (1 pt)



Find the area enclosed between $f(x) = 0.2x^2 + 4$ and $g(x) = x$ from $x = -6$ to $x = 7$.

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2. (1 pt) Find the area of the region enclosed between $y = 3\sin(x)$ and $y = 2\cos(x)$ from $x = 0$ to $x = 0.9\pi$.
Hint: Notice that this region consists of two parts.

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3. (1 pt) Consider the area between the graphs $x + 3y = 6$ and $x + 4 = y^2$. This area can be computed in two different ways using integrals

First of all it can be computed as a sum of two integrals

$$\int_a^b f(x)\,dx + \int_b^c g(x)\,dx$$

where $a =$ _____, $b =$ _____, $c =$ _____ and
$f(x) =$ _____
$g(x) =$ _____

Alternatively this area can be computed as a single integral

$$\int_\alpha^\beta h(y)\,dy$$

where $\alpha =$ _____, $\beta =$ _____ and
$h(y) =$ _____
Either way we find that the area is _____.

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4. (1 pt) Sketch the region enclosed by $y = 6x$ and $y = 4x^2$. Decide whether to integrate with respect to x or y. Then find the area of the region.

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5. (1 pt) Sketch the region enclosed by the given curves. Decide whether to integrate with respect to x or y. Then find the area of the region.
$y = 4x^2, y = x^2 + 4$

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6. (1 pt) There is a line through the origin that divides the region bounded by the parabola $y = 6x - 5x^2$ and the x-axis into two regions with equal area. What is the slope of that line?
