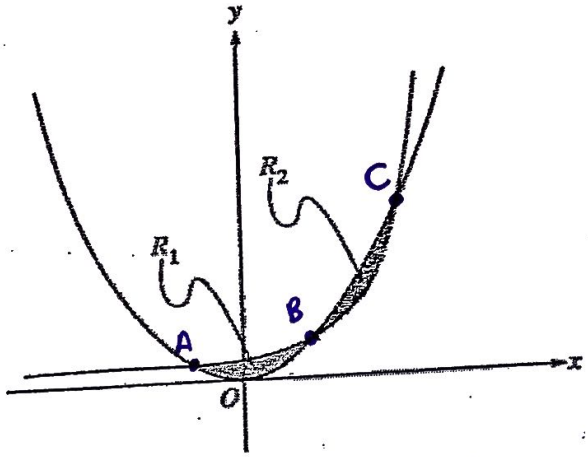
**1995 AB4/BC2**




Note: Figure not drawn to scale.

The shaded regions $R_1$ and $R_2$ shown above are enclosed by the graphs of $f(x)=x^2$ and $g(x)=2^x$.

(a) Find the $x$- and $y$-coordinates of the three points of intersection of the graphs of $f$ and $g$.

(b) Without using absolute value, set up an expression involving one or more integrals that gives the total area enclosed by the graphs of $f$ and $g$. Do not evaluate.

a) point B → (2, 4) Let $b=2$

point C → (4, 16) $c=4$

point A → (−.767, 0.588) $a=-.767$

b) Area $= \int_a^b (2^x - x^2)\,dx + \int_b^c (x^2 - 2^x)\,dx$

or

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

**1997 BC3**

Let $R$ be the region enclosed by the graphs of $y=\ln(x^2+1)$ and $y=\cos x$.

(a) Find the area of $R$.


D = −.916

E = .916

Area of R = $\int_D^E (\cos x - \ln(x^2+1))\,dx = 1.168$

OR Area of R = $2\int_0^E (\cos x - \ln(x^2+1))\,dx$