INTEGRATION   CALCULATOR

1) Evaluate the following.

a) $\displaystyle\int (6x^3 - 3x^2 + 8x - 5)dx$

b) $\displaystyle\int \left(\frac{8x^3 - 6x^2}{4x}\right)dx$

c) $\displaystyle\int \left(4\sqrt{x} - 12\sqrt[3]{x}\right)dx$

d) $\displaystyle\int_{1}^{6} (3x^2 - 12)dx$

e) $\displaystyle\int_{4}^{9} \left(\frac{5}{\sqrt{x}}\right)dx$

**f)** $\displaystyle\int_{-3}^{9} (2x - 3)(9 - x)dx$

2) Below is the graph of the function $y = x^2 - 7x + 10$.
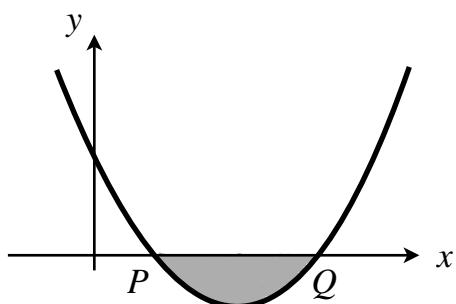
a) Calculate the x coordinates of the roots P and Q
b) Calculate the shaded area.

3) The diagram below shows the graph of the function $y = 8x + 4$ and $y = x^3 + x^2 + 4x$.
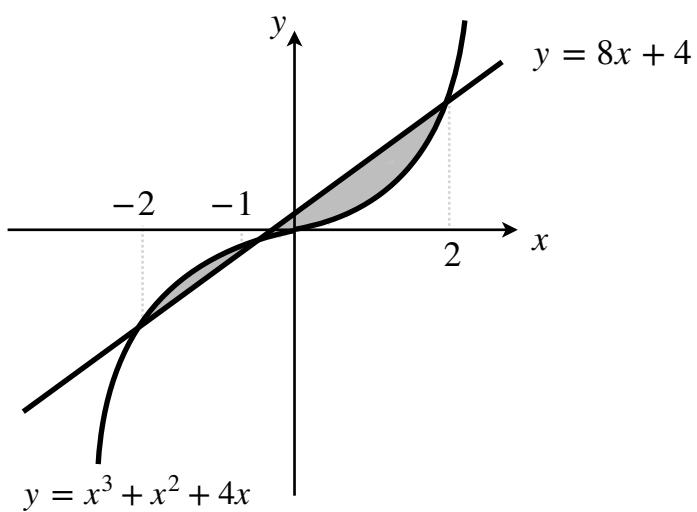
Work out the total area enclosed by the two curves.