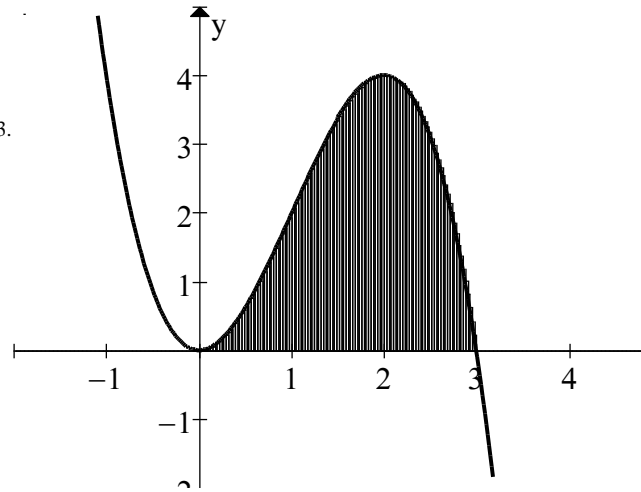


## Integration

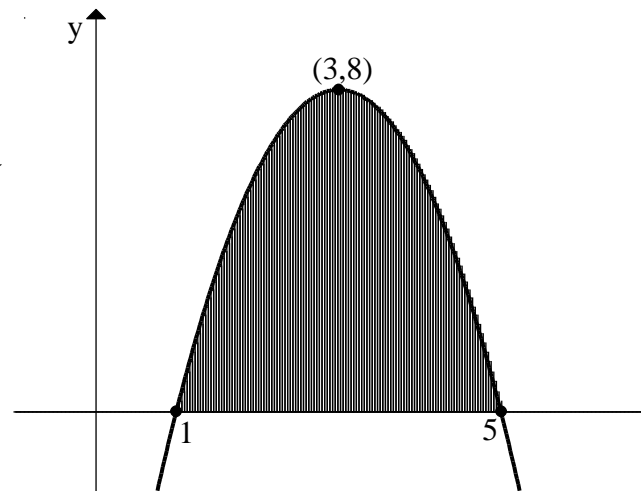
1. Find  $\int (2x^2 - 2)(x^2 + 1) dx$ .

2. Given  $\int \frac{10}{(2x-1)^2} dx = -6$ , find p.

3. The diagram shows part of the graph of  $y = 3x^2 - x^3$ . Calculate the shaded area.

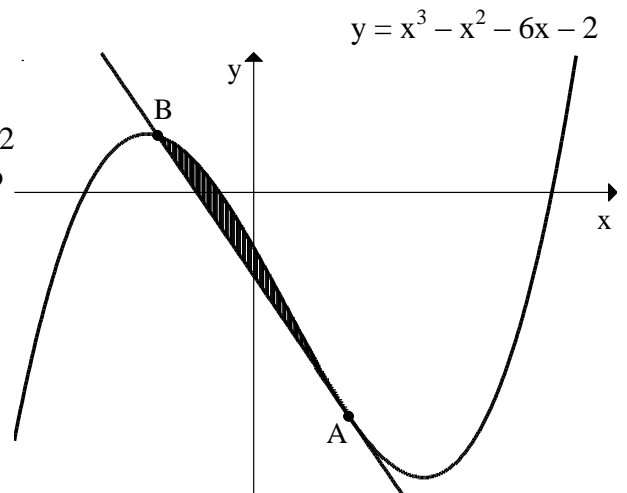


4. (a)  $f(x)$  crosses the x-axis at (1,0) and (5,0) and has a maximum turning point at (3,8). Find a formula for  $f(x)$ .
- (b) Calculate the area under the curve.

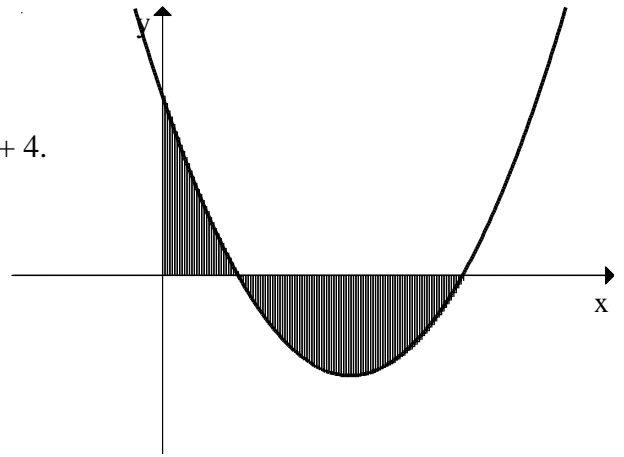


5. The diagram shows the curve  $y = x^3 - x^2 - 6x - 2$  and the straight line AB. This line is a tangent to the curve at the point A(1,-8).

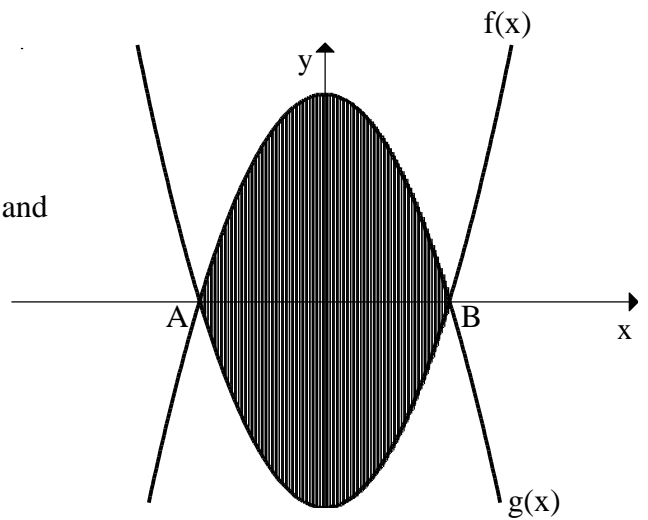
- (a) Find the equation of this tangent at A.  
 (b) Find the coordinates of B.  
 (c) Calculate the shaded area.



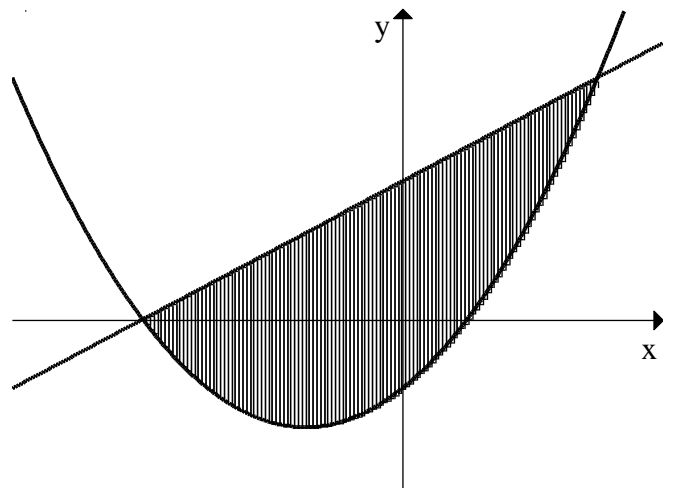
6. The diagram shows the graph of  $y = x^2 - 5x + 4$ . Calculate the shaded area.



7. The diagram shows the graphs of  $f(x) = x^2 - 4$  and  $g(x) = 4 - x^2$ .
- (a) Find the coordinates of A and B.  
 (b) Calculate the shaded area.

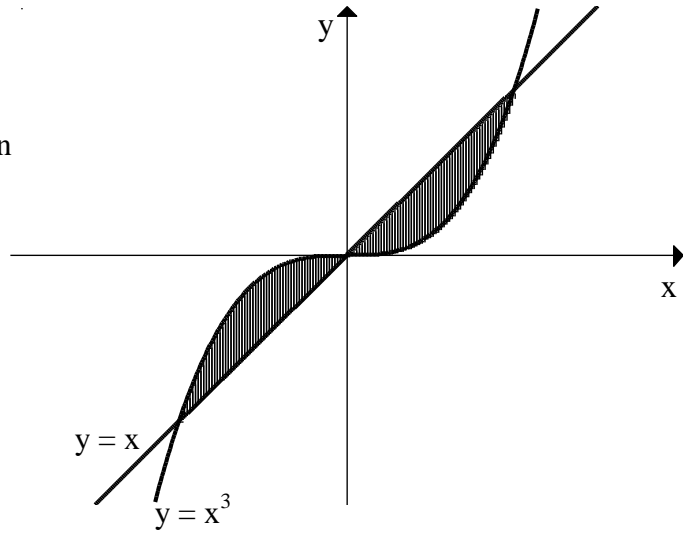


8. The graph shows the line  $y = 2x + 8$  and the curve  $y = x^2 + 3x - 4$ . Calculate the area between the line and the curve.



9. The diagram shows the cubic function  $y = x^3$  and the line  $y = x$ .

Calculate the shaded area.



10. Shown is part of the parabola  $y = \frac{1}{2}x^2 + 4$ .  
Calculate the shaded area.

