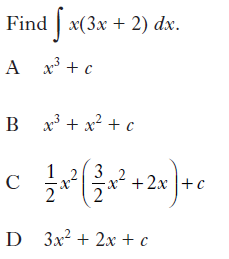
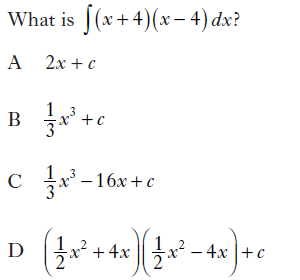
HIGHER MATHEMATICS

**Integration**

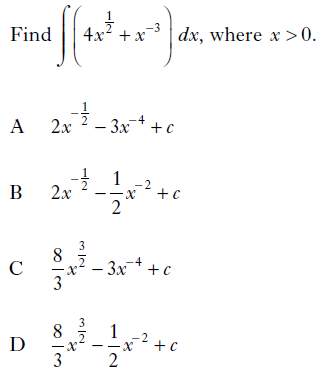
**1. Non-Calculator (Multiple Choice)**



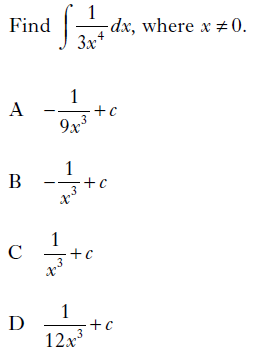
**2. Non-Calculator (Multiple Choice)**



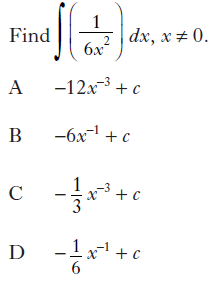
**3. Non-Calculator (Multiple Choice)**



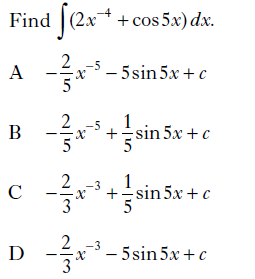
**4. Non-Calculator (Multiple Choice)**



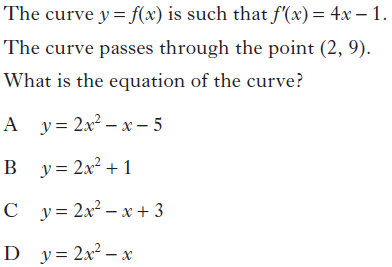
**5. Non-Calculator (Multiple Choice)**



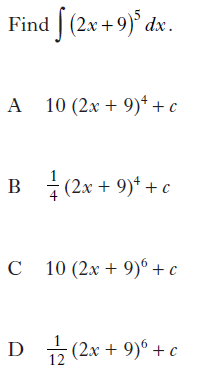
**6. Non-Calculator (Multiple Choice)**



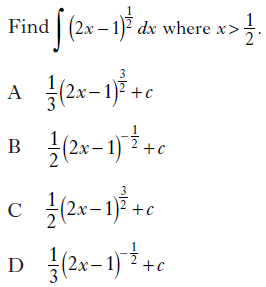
**7. Non-Calculator (Multiple Choice)**



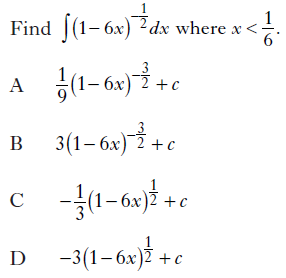
**8. Non-Calculator (Multiple Choice)**



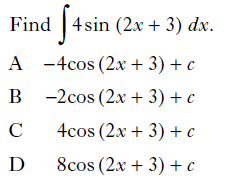
**9. Non-Calculator (Multiple Choice)**



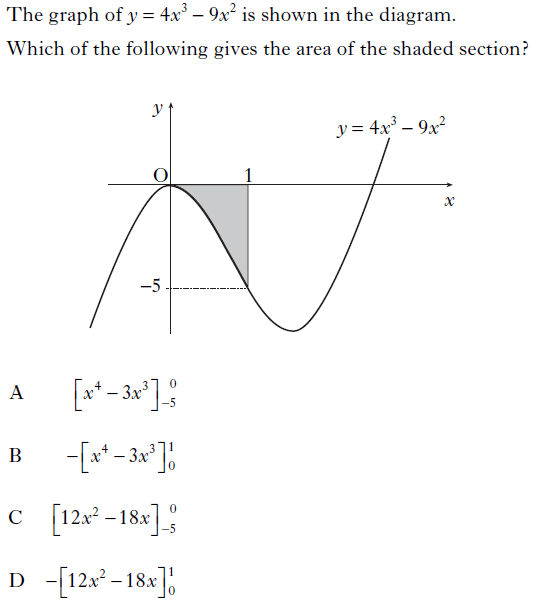
**10. Non-Calculator (Multiple Choice)**



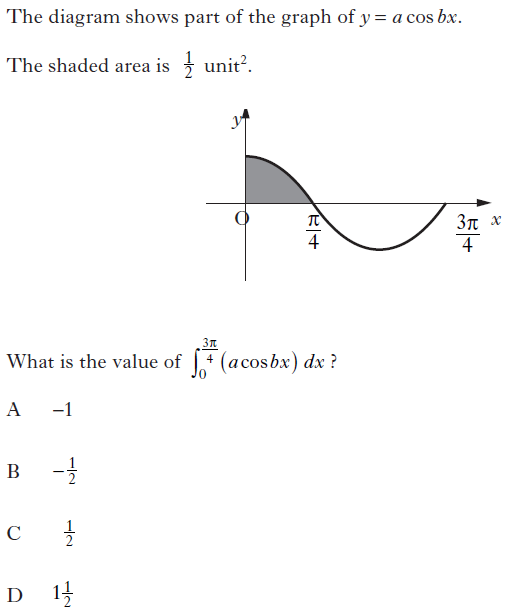
**11. Non-Calculator (Multiple Choice)**



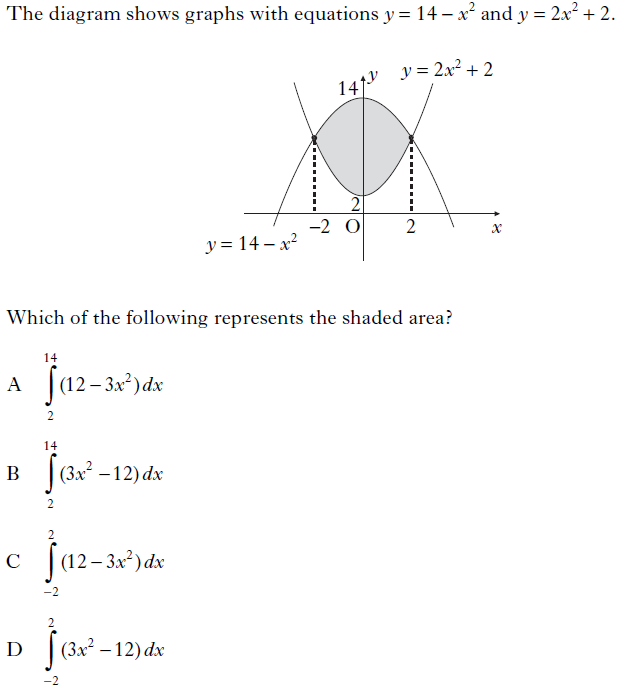
**12. Non-Calculator (Multiple Choice)**



**13. Non-Calculator (Multiple Choice)**



**14. Non-Calculator (Multiple Choice)**



**15. Non-Calculator**



**16. Non-Calculator**



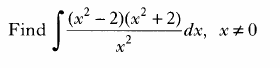
**17. Non-Calculator**



**18. Calculator**



**19. Calculator**



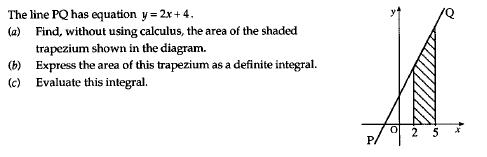
**20. Non-Calculator**

Find .

**21. Calculator**



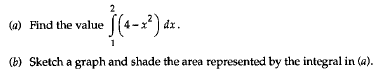
**22. Non-Calculator**



**23. Non-Calculator**



**24. Non-Calculator**



**25. Non-Calculator**



**26. Non-Calculator**



**27. Non-Calculator**



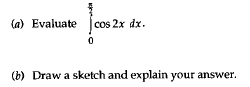
**28. Calculator**



**29. Non-Calculator**



**30. Non-Calculator**



**31. Non-Calculator**



**32. Non-Calculator**



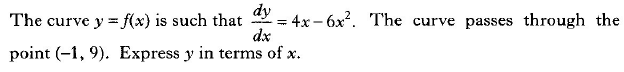
**33. Non-Calculator**



**34. Non-Calculator**



**35. Calculator**



**36. Non-Calculator**



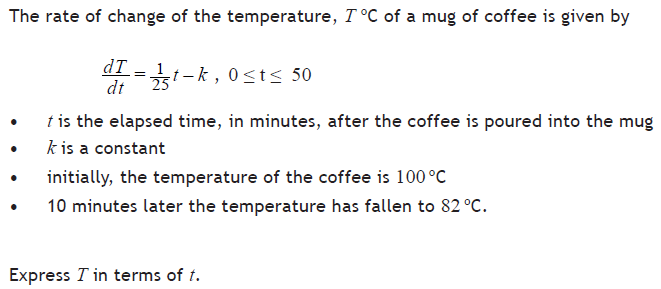
**37. Calculator**

For a function *f*, defined on a suitable domain, it is known that:

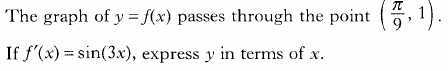
* 
* 

Express  in terms of *x*.

**38. Non-Calculator**



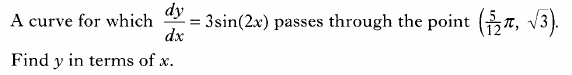
**39. Non-Calculator**



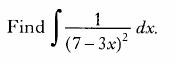
**40. Non-Calculator**



**41. Calculator**



**42. Calculator**



**43. Non-Calculator**



**44. Non-Calculator**



**45. Non-Calculator**



**46. Non-Calculator**

Find .

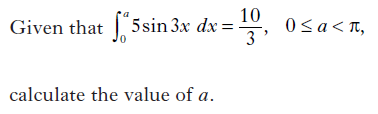
**47. Calculator**



**48. Calculator**



**49. Calculator**

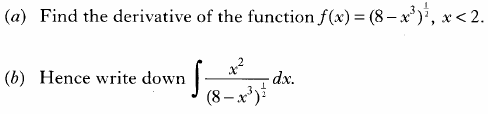


**50. Calculator**

(a) Given that , find .

(b) Hence find .

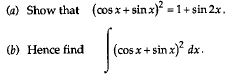
**51. Non-Calculator**



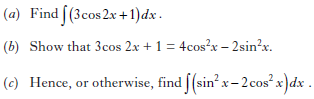
**52. Non-Calculator**



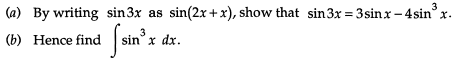
**53. Non-Calculator**



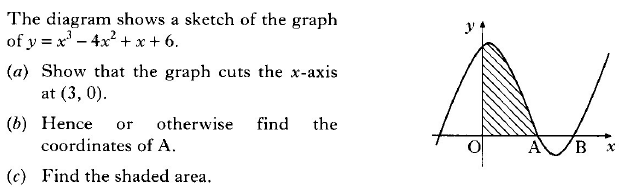
**54. Calculator**



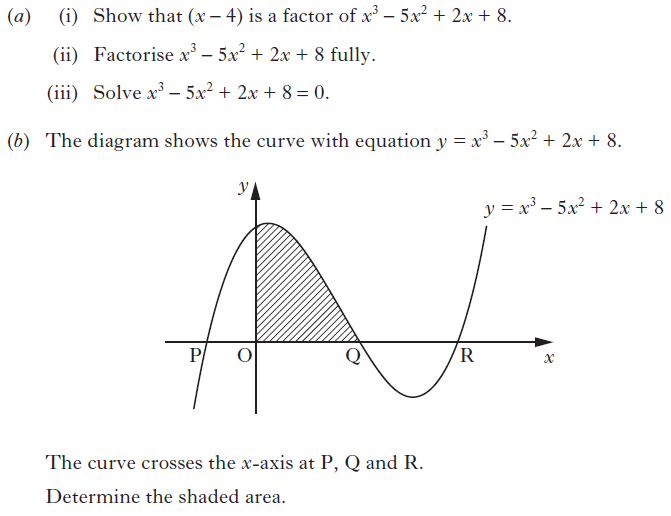
**55. Non-Calculator**



**56. Non-Calculator**



**57. Non-Calculator**



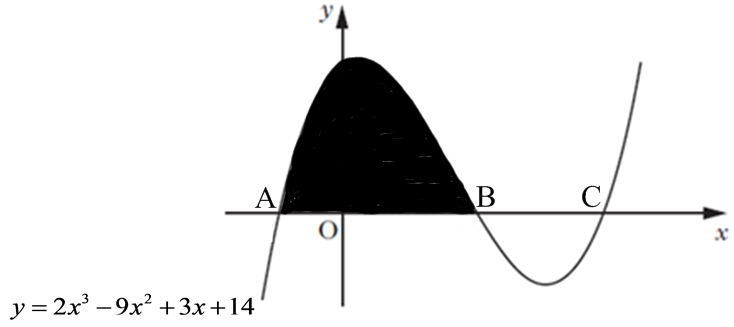
**58. Calculator**

(a) (i) Show that  is a factor of .

(ii) Hence solve the equation .

(b) The diagram below shows the graph with equation .

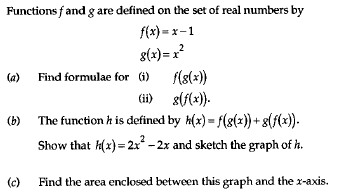
The curve cuts the *x*-axis at A, B and C.



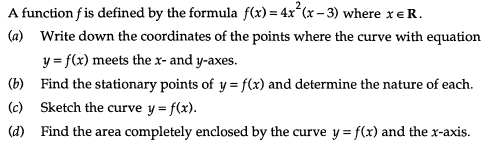
(i) Write down the coordinates of the points A and B.

(ii) Hence calculate the shaded area in the diagram.

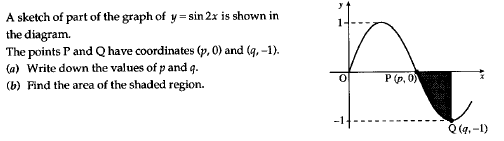
**59. Non-Calculator**



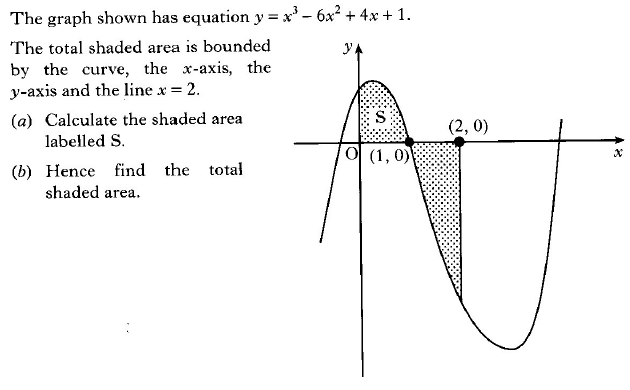
**60. Calculator**



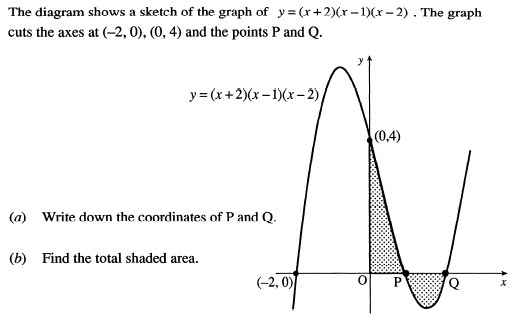
**61. Calculator**



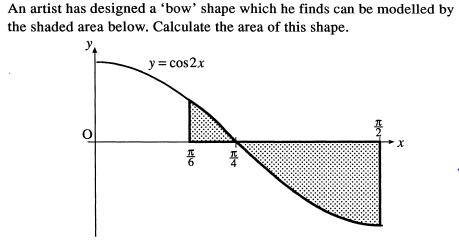
**62. Non-Calculator**



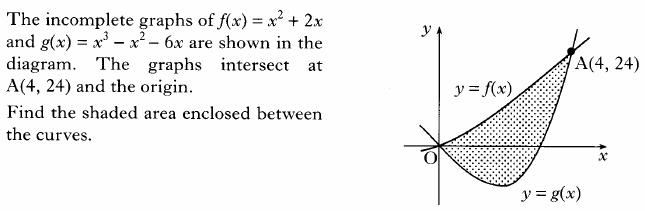
**63. Calculator**



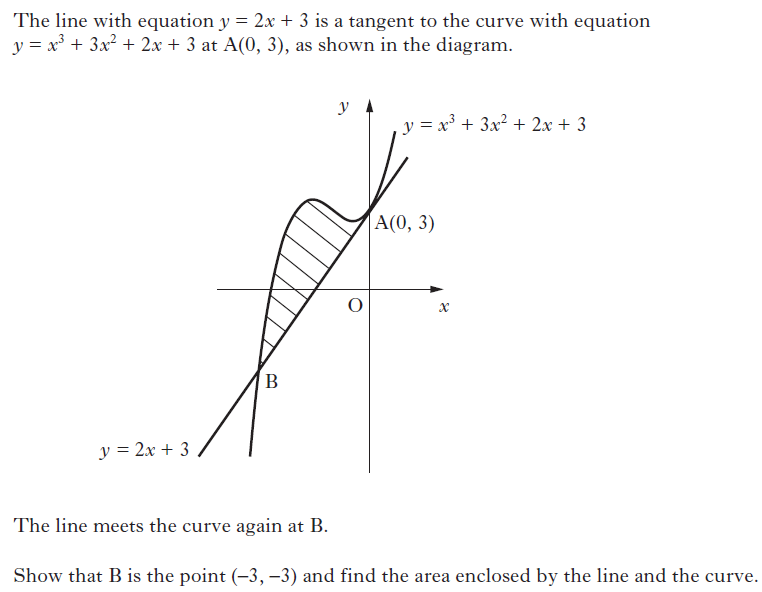
**64. Non-Calculator**



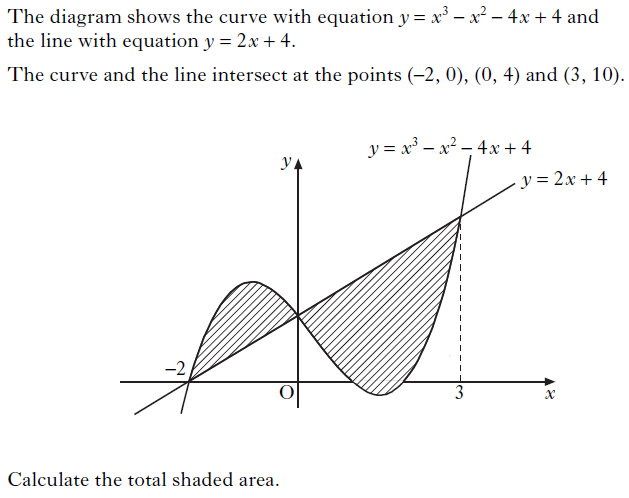
**65. Calculator**



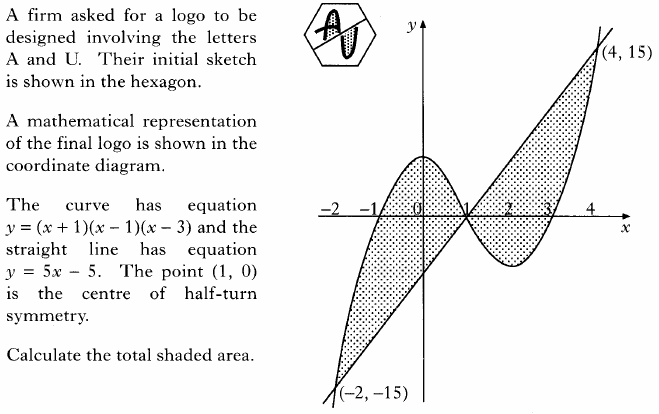
**66. Calculator**



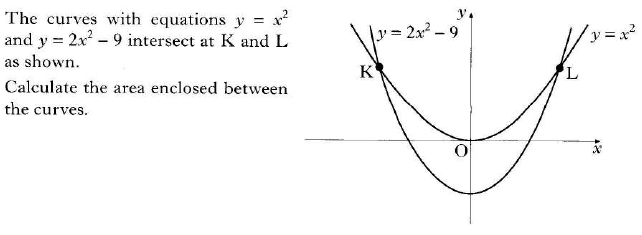
**67. Calculator**



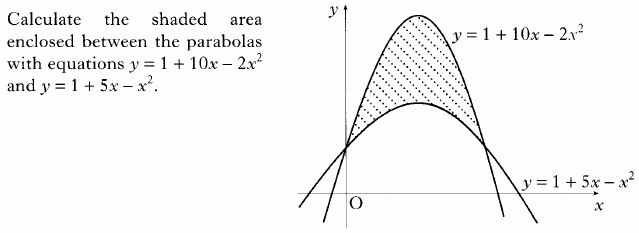
**68. Calculator**



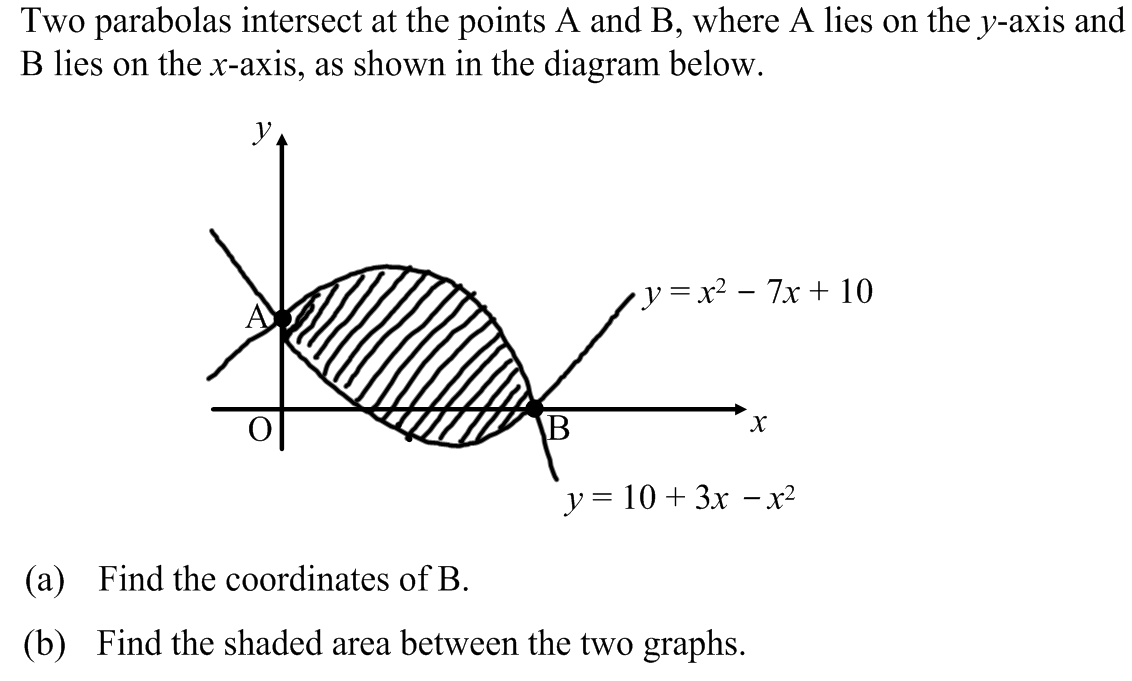
**69. Calculator**



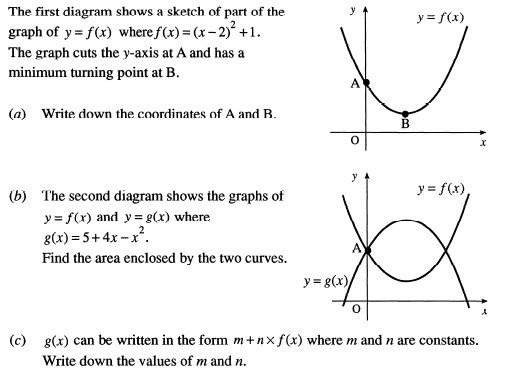
**70. Calculator**



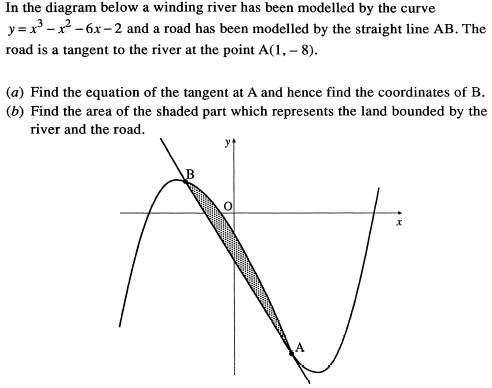
**71. Calculator**



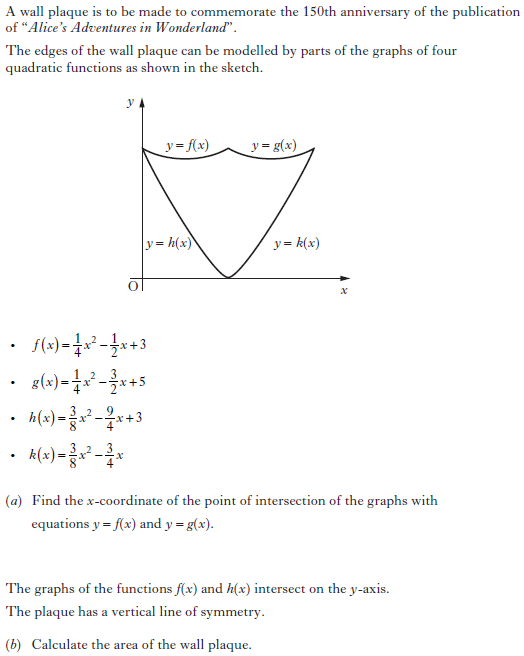
**72. Calculator**



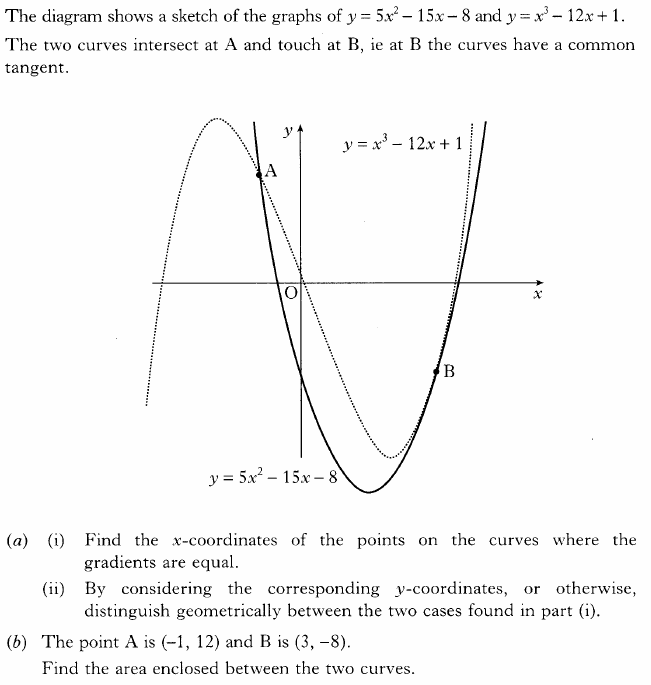
**73. Calculator**



**74. Calculator**



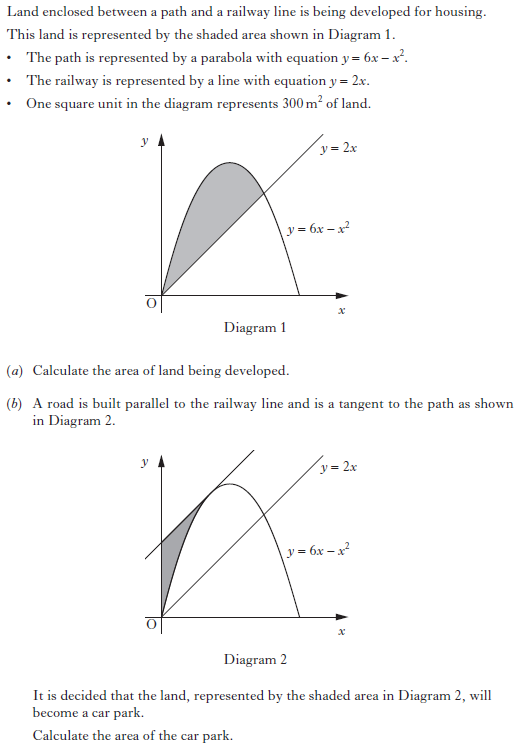
**75. Non-Calculator**



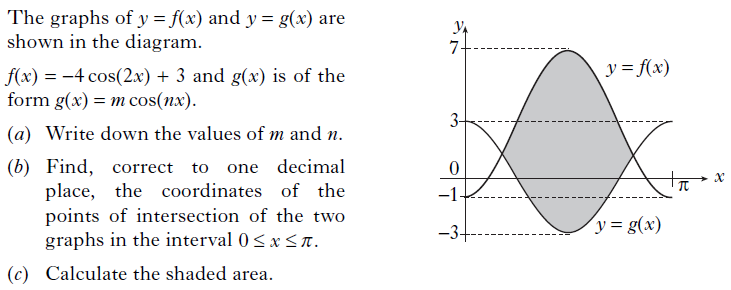
**76. Non-Calculator**



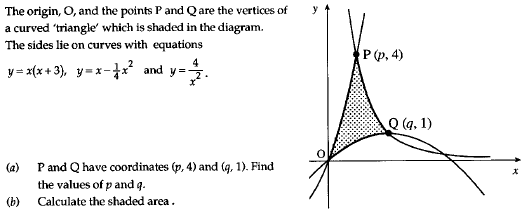
**77. Calculator**



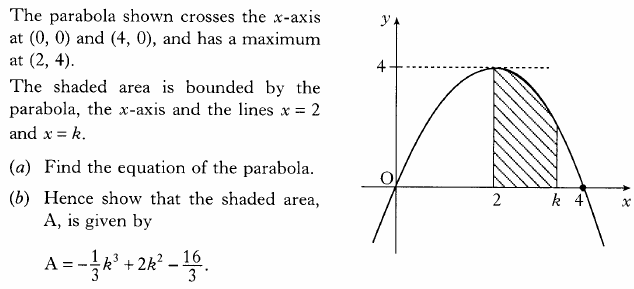
**78. Calculator**



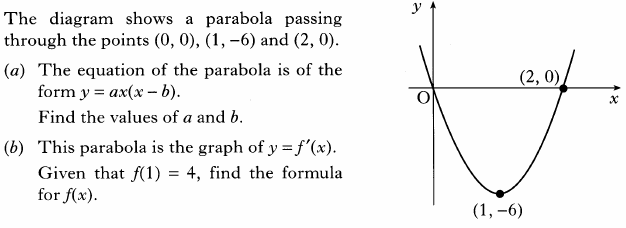
**79. Calculator**



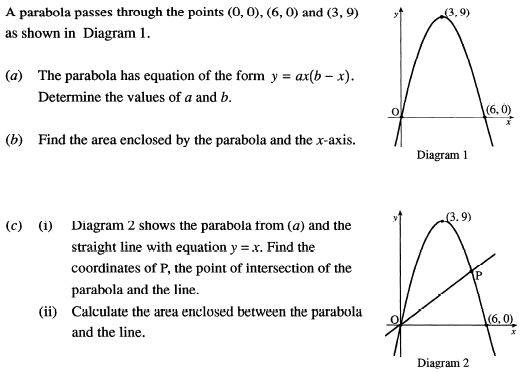
**80. Calculator**



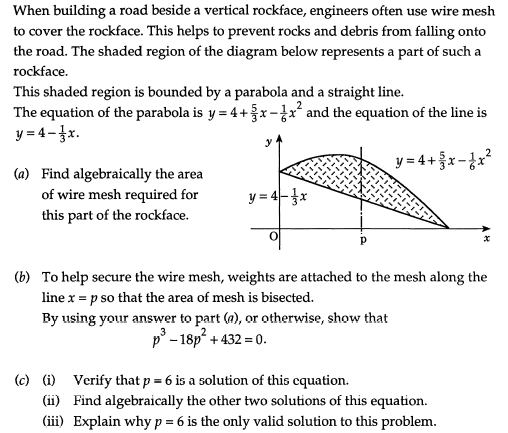
**81. Non-Calculator**



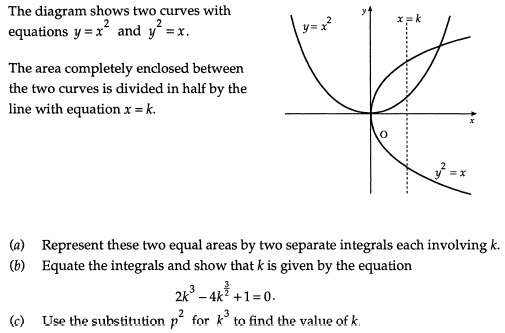
**82. Calculator**



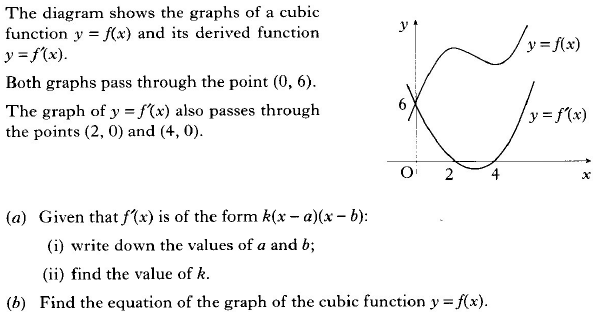
**83. Calculator**



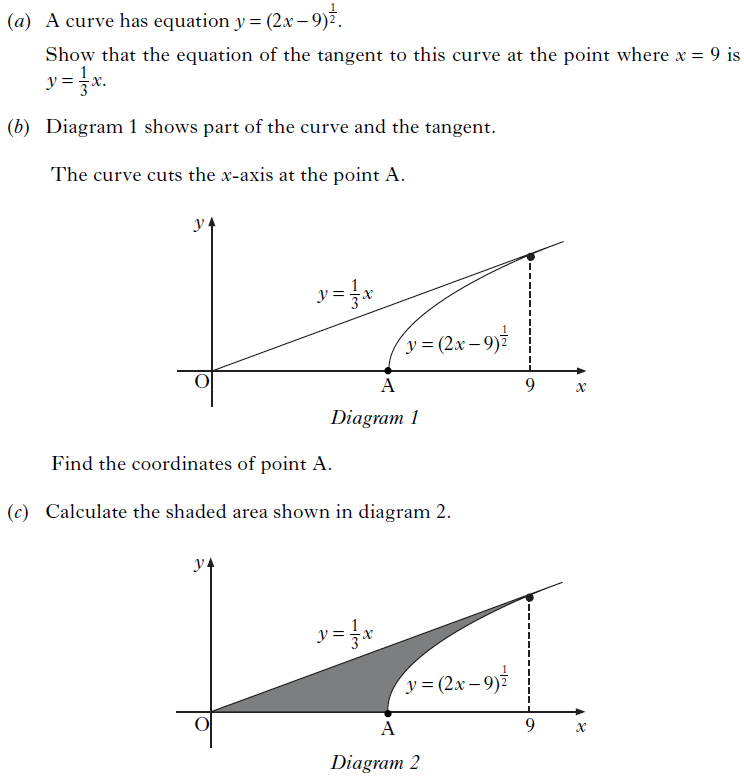
**84. Calculator**



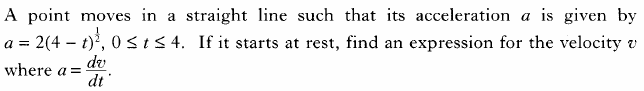
**85. Calculator**



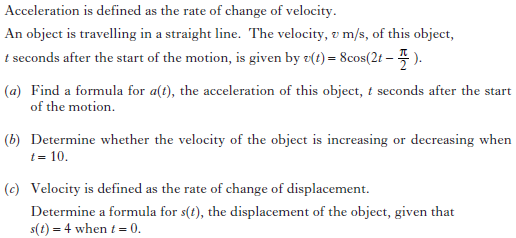
**86. Calculator**



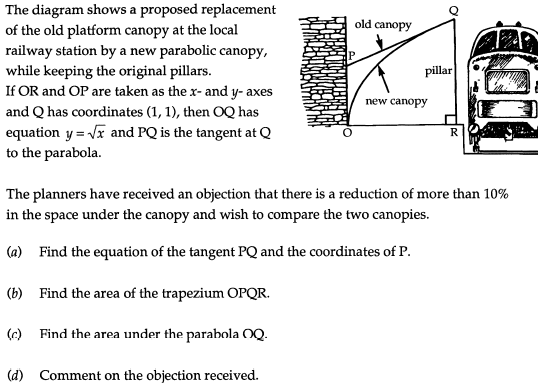
**87. Calculator**



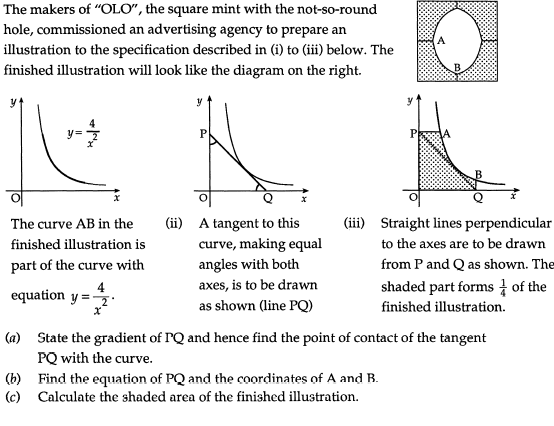
**88. Calculator**



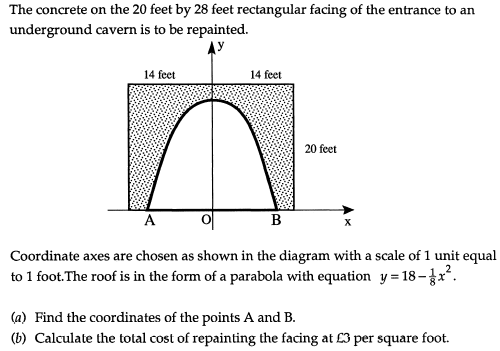
**89. Calculator**



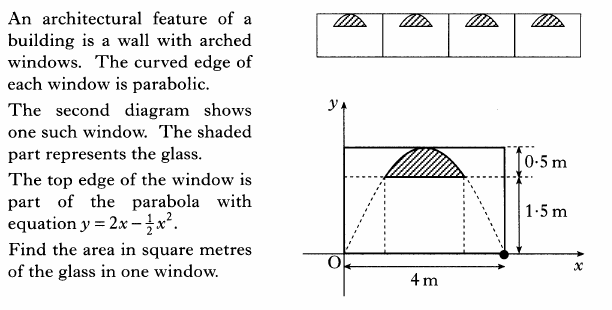
**90. Calculator**



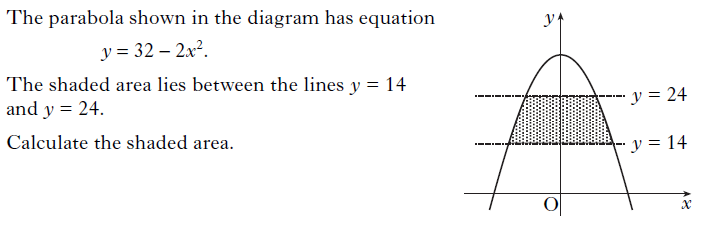
**91. Calculator**



**92. Calculator**



**93. Calculator**



**94. Calculator**

