Instructions
- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

Differentiate each function with respect to *x*.

1. $y = 3x^4$
2. $y = 7x^3$
3. $y = 14x^2$
4. $y = x^4$
5. $y = \frac{1}{x^2}$
6. $y = \frac{7}{x}$
7. $y = 6x^{-6}$
8. $y = \frac{1}{4}x^6$
9. $y = x^2 + x^3$
10. $y = 5x - 10x^2$
11. $y = x^2 - 3x^4$
12. $y = 9 + 4x2$
13. $y = 3x + \frac{1}{4}x^2$
14. $y = 2x^{-1} - x^{-2}$
15. $y = 4x^{\frac{1}{2}} + \frac{1}{4}x^2$