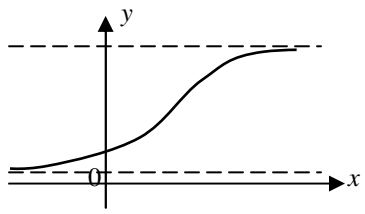
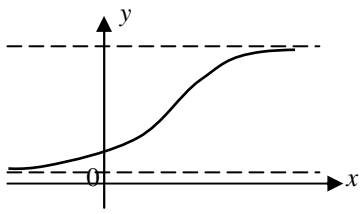
= Year 12 **= Calculus II** **= Worksheet 6**

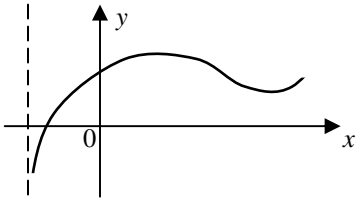
1. The graph of $y = \int f(x)dx$ is shown below. Sketch $y = f(x)$.



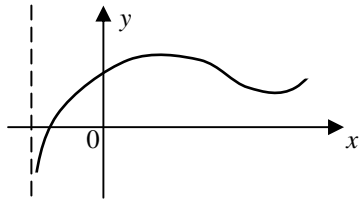
2. The graph of $y = f(x)$ is shown below. Sketch $y = \int f(x)dx$.



3. The graph of $y = \int f(x)dx$ is shown below. Sketch $y = f(x)$.



4. The graph of $y = f(x)$ is shown below. Sketch $y = \int f(x)dx$.



5. Evaluate $\int_{-1}^{1} \sin^{-1}\left(\frac{x}{2}\right)dx$ without using graphics calculator.

6. Evaluate $\int_{-1}^{1} \left(\cos^{-1} x - \frac{\pi}{2}\right)dx$ without using graphics calculator.

7. Evaluate $\int_{-5}^{5} \left(0.3\cos^2(2x+1) + \frac{3}{10}\sin^2(2x+1)\right)dx$ without using graphics calculator.

8. Evaluate $\int_{-1}^{1} \left(\frac{3}{2}\sec^2\left(\frac{x}{3}\right) - \frac{3}{2}\tan^2\left(\frac{x}{3}\right)\right)dx$ without using graphics calculator.

9. Evaluate $\int_{0}^{1.5} \sqrt{\frac{3}{3-x^2}}dx$ without using graphics calculator.

10. Evaluate $\int_{\sqrt{2}}^{-\sqrt{2}} \frac{2}{\left(i\sqrt{2}-x\right)\left(i\sqrt{2}+x\right)}dx$.

11. Evaluate $\int_{-\pi}^{\pi} \left(\frac{\sin x}{x}\right)dx$.

Numerical, algebraic and worded answers.

5. 0
6. 0
7. 3
8. 3
9. $\pi/\sqrt{3}$
10. $\pi/\sqrt{2}$
11. ≈3.704

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