

ALGEBRAIC SUBSTITUTION

• Use Algebraic Substitution To Show That;

$$1 \quad \int x\sqrt{x+2} dx = \frac{2}{5}(\sqrt{x+2})^5 - \frac{4}{3}(\sqrt{x+2})^3 + c$$

$$2 \quad \int x\sqrt{2x-3} dx = \frac{1}{10}(\sqrt{2x-3})^5 + \frac{1}{2}(\sqrt{2x-3})^3 + c$$

$$3 \quad \int x^2\sqrt{1-x} dx = -\frac{2}{7}(\sqrt{1-x})^7 + \frac{4}{5}(\sqrt{1-x})^5 - \frac{2}{3}(\sqrt{1-x})^3 + c$$

$$4 \quad \int x^2\sqrt{2x-1} dx = \frac{1}{28}(\sqrt{2x-1})^7 + \frac{1}{10}(\sqrt{2x-1})^5 + \frac{1}{12}(\sqrt{2x-1})^3 + c$$

$$5 \quad \int x\sqrt[3]{x+1} dx = \frac{3}{7}(\sqrt[3]{x+1})^7 - \frac{3}{4}(\sqrt[3]{x+1})^4 + c$$

$$6 \quad \int x\sqrt[3]{2x-1} dx = \frac{3}{28}(\sqrt[3]{2x-1})^7 + \frac{3}{16}(\sqrt[3]{2x-1})^4 + c$$

$$7 \quad \int x(1+x)^{\frac{2}{3}} dx = \frac{3}{8}(\sqrt[3]{x+1})^8 - \frac{3}{5}(\sqrt[3]{x+1})^5 + c$$

$$8 \quad \int (x-4)\sqrt{x+1} dx = -\frac{10}{3}(\sqrt{x+1})^3 + \frac{2}{5}(\sqrt{x+1})^5 + c$$

$$9 \quad \int (2x+3)\sqrt{2x+1} dx = \frac{2}{3}(\sqrt{2x+1})^3 + \frac{1}{5}(\sqrt{2x+1})^5 + c$$

$$10 \quad \int \frac{x}{\sqrt{x-2}} dx = \frac{2}{3}(\sqrt{x-2})^3 + 4\sqrt{x-2} + c$$

$$11 \quad \int \frac{x+2}{\sqrt{x+1}} dx = 2\sqrt{x+1} + \frac{2}{3}(\sqrt{x+1})^3 + c$$

$$12 \quad \int \frac{x^2}{\sqrt{2x-1}} dx = \frac{1}{20}(\sqrt{2x-1})^5 + \frac{1}{6}(\sqrt{2x-1})^3 + \frac{1}{4}\sqrt{2x-1} + c$$