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$$\frac{d}{dx}\left\{\sqrt{1-x^3}\right\} = \frac{1}{2}\left(1-x^3\right)^{-\frac{1}{2}}\left(-3x^2\right)$$

$$= \frac{-3x^2}{2\sqrt{1-x^3}}$$

b) Hence find; $\int \frac{x^2}{\sqrt{1-x^3}}dx$

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$$\frac{du}{dx} = 2x$$

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$$= \frac{1}{2}\cdot\frac{2}{3}\left(2+x^2\right)^{\frac{3}{2}} + c \qquad du = 2xdx$$

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$$\int x\sqrt{2+x^2}\,dx$$

$\frac{1}{2}du$ $\qquad u$

$$u = 2 + x^2$$

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$x \ldots dx \rightarrow \frac{1}{2}du$; $2+x^2 \rightarrow u$

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$u = 2+x^2$

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$$=-\frac{1}{6}\left[\left(x^3-2\right)^{-2}\right]_0^1$$

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$$(iii)\int_0^1 \frac{x^2}{\left(x^3-2\right)^3}\,dx \qquad \textbf{\textit{OR}} \qquad \int_0^1 \frac{x^2}{\left(x^3-2\right)^3}\,dx$$

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$$u = x^3 - 2$$

$$du = 3x^2 dx$$

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OR

$$\int_0^1 \frac{x^2}{\left(x^3-2\right)^3}\,dx$$

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Exercise 11H; 1, 3, 5, 7ace etc, 8bdf,9 11*