**Standard Integrals**

**Observe that…**

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|  | is useful for |  |
|  | is useful for |  |
|  | is useful for |  |

Proof of

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| Step 1: Proof of  by the product rule gives:  (because and )  We have the result that when:  And… |

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| Step 2: Proof of  This follows as an extension by integration by substitution:  Using the substitution , where : |

Proof of

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| Step 1: Proof of  , gives:  We have the result that when:  And… |

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| Step 2: Proof of  This follows as an extension by integration by substitution:  Using the substitution , where : |

Some Points to Note

\*\*\*Angles in radians\*\*\*

Standard integrals cannot be used as in example below;

Instead do;

A second example;