Integration

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## Example

Evaluate the following integral:

## Answer

Using the rules for integrating trigonometric functions:

Then, evaluating the integral between the limits:

## Questions

Calculate the following:

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## Answers

Therefore, .

=

=

1. Begin by rewriting the integral in the format

Since , the integral is evaluated as

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1. Set , which gives

Therefore, , and write

 This simplifies to give

And then, =

Finally, substitute back in:

1. Begin by evaluating

Set . Therefore, and so

Now, , which simplifies to give

This gives .

 is then substituted back in:

Now, evaluate .

This gives

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1. Using integration by parts, set and . Find and . Plug these values into the integration by parts formula to get

Evaluating this gives

Then, use this to evaluate

1. Using integration by parts, set and . Find and . Then, plug these values into the integration by parts formula to get

Simplify:

Calculating this gives:

Therefore,

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1. Using integration by parts, set and Find and

Then, plug these values into the integration by parts formula to get

Then, evaluate the new integral using integration by parts, to get

Simplify this to get

Plug this back into the original integral to get

Simplify:

Next, add to both sides:

Then divide both sides by 2:

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Now, find

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