Instructions
Read today's Notes and Learning Goals

1. Question Details
Print and complete Worksheet #1. If you cannot print the worksheet, create a good quality copy of the graph and then answer the worksheet questions on your own paper.

Which phrase best describes how you found the height of your slice?
- top – bottom
- left – right
- right – left
- bottom – top

Enter the integral from your worksheet.
\[ A = \int \] 

2. Question Details
Print and complete Worksheet #2. If you cannot print the worksheet, create a good quality copy of the graph and then answer the worksheet questions on your own paper.

Which phrase best describes how you found the width of your slice?
- bottom – top
- top – bottom
- left – right
- right – left

Enter the integral from your worksheet.
\[ A = \int \] 

3. Question Details
Print and complete Worksheet #3. If you cannot print the worksheet, create a good quality copy of the graph and then answer the worksheet questions on your own paper.

Enter the integral from your worksheet.
\[ A = \int \]
4. Question Details
Print and complete Worksheet #4. If you cannot print the worksheet, create a good quality copy of the graph and then answer the worksheet questions on your own paper.

Enter the integral from your worksheet.

\[ A = \int \] 

5. Question Details
Print and complete Worksheet #5. If you cannot print the worksheet, create a good quality copy of the graph and then answer the worksheet questions on your own paper.

Which axis of integration did you choose?
- x-axis
- y-axis

Enter the integral from your worksheet.

\[ A = \int \] 

What is the exact total area?

6. Question Details
Print and complete Worksheet #6. If you cannot print the worksheet, graph the functions carefully on graph paper and then answer the worksheet questions on your own paper.

Enter the integral from your worksheet.

\[ A = \int \] 

What is the exact total area?
7. Print and complete Worksheet #7. If you cannot print the worksheet, graph the functions carefully on graph paper and then answer the worksheet questions on your own paper.

Enter the formula for the area of your slice

\[ dA = \]

What is the exact total area?

8. Print and complete Worksheet #8. If you cannot print the worksheet, graph the functions carefully on graph paper and then answer the worksheet questions on your own paper.

Enter the formula for the area of a slice in the leftmost region.

\[ dA_1 = \]

Enter the formula for the area of a slice in the rightmost region.

\[ dA_2 = \]

What is the exact total area?

Consider the region to the right of the curve \( y = \sqrt{x + 2} \), left of the curve \( y = 4 - x \), and above the \( x \)-axis as shown.

a. If you sliced the region using **vertical** slices along the \( x \)-axis, what is the minimum number of integrals you would need to compute the total area?
   - 0
   - 1
   - 2
   - 3

b. If you sliced the region using **horizontal** slices along the \( y \)-axis, what is the minimum number of integrals you would need to compute the total area?
   - 0
   - 1
   - 2
   - 3
Consider the region to the right of the curve \( y = \sqrt{x + 2} \), left of the curve \( y = 4 - x \), and above the \( x \)-axis as shown.

Four students write integrals for this area using **vertical** slices along the \( x \)-axis.

- **Alice:** \( \int_{-2}^{4} \sqrt{x + 2} \, dx \)
- **Bob:** \( \int_{-2}^{4} (4 - x) \, dx \)
- **Chris:** \( \int_{-2}^{4} (4 - x - \sqrt{x+2}) \, dx \)
- **Dany:** \( \int_{-2}^{2} \sqrt{x + 2} \, dx + \int_{2}^{4} (4 - x) \, dx \)

Which student is correct?

- Alice
- Bob
- Chris
- Dany
Consider the region to the right of the curve \( y = \sqrt{x + 2} \), left of the curve \( y = 4 - x \), and above the \( x \)-axis as shown.

Four students write integrals for this area using horizontal slices along the \( y \)-axis.

- **Alice**: \[
\int_{-2}^{4} \left( y^2 - 2 \right) - (4 - y) \, dy
\]

- **Bob**: \[
\int_{-2}^{4} \left( 4 - y - (y^2 - 2) \right) \, dy
\]

- **Chris**: \[
\int_{0}^{2} \left( 4 - y - (y^2 - 2) \right) \, dy
\]

- **Dany**: \[
\int_{-2}^{2} (y^2 - 2) \, dy + \int_{2}^{4} (4 - y) \, dy
\]

Which student is correct?

- Alice
- Bob
- Chris
- Dany

12. **Question Details**

Print and complete **Worksheet #9**. If you cannot print the worksheet, graph the region carefully and then answer the worksheet questions on your own paper.

What is the exact total area?
13. Question Details

Print and complete Worksheet #10. If you cannot print the worksheet, graph the region carefully and then answer the worksheet questions on your own paper.

What is the exact total area?