

Find the volume of revolution when  $1 + \sqrt{x}$  is rotated about the x-axis between  $1 \leq x \leq 4$ .

Enter the function and tap **EXE**.

Next set up and evaluate the volume integral in Main.

Exact and approximate values have been evaluated.

Open a graph window, select the function and drag into the graph window, adjusting the scale if necessary.

Tap Analysis, G-Solve,  $\pi \int f(x)^2 dx$ .

1 +  $\sqrt{x}$

$\sqrt{x} + 1$

Math1 Line  $\frac{\square}{\square}$   $\sqrt{\square}$   $\pi$   $\rightarrow$

Math2  $\square^{\square}$   $e^{\square}$   $\ln$   $\log_{\square}(\square)$   $\sqrt[\square]{\square}$

Math3  $|\square|$   $x^2$   $x^{-1}$   $\log_{10}(\square)$   $\text{solve}(\square)$

Trig  $\square \square$   $\text{toDMS}$   $\{\square\}$   $\{\square\}$   $(\square)$

Var  $\square \square$   $\sin$   $\cos$   $\tan$   $^{\circ}$   $*$

abc  $\leftarrow$   $\rightarrow$   $\square$   $\square$   $\text{ans}$  **EXE**

Alg Standard Real Deg  $\text{MODE}$

$\int_1^4 \pi (\sqrt{x} + 1)^2 dx$

$\frac{119 \cdot \pi}{6}$

approx (

62.3082543

Math1 Line  $\frac{\square}{\square}$   $\sqrt{\square}$   $\pi$   $\rightarrow$

Math2  $\square^{\square}$   $e^{\square}$   $\ln$   $i$   $\infty$

Math3  $|\square|$   $\frac{d}{d\square} \square$   $\frac{d}{d\square} \square$   $\int \square$   $\lim_{\square \rightarrow \square} \square$

Trig  $\square \square$   $\left[ \square \right]$   $\left[ \square \right]$   $\Sigma \square$   $\int \square$

Var  $\square \square$   $\sin$   $\cos$   $\tan$   $\theta$   $t$

abc  $\leftarrow$   $\rightarrow$   $\square$   $\square$   $\text{ans}$  **EXE**

Alg Standard Real Deg  $\text{MODE}$

$\int_1^4 \pi (\sqrt{x} + 1)^2 dx$

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62.3082543

$y = 1 + \sqrt{x}$

$x$

Math1 Line  $\frac{\square}{\square}$   $\sqrt{\square}$   $\pi$   $\rightarrow$

Math2  $\square^{\square}$   $e^{\square}$   $\ln$   $i$   $\infty$

Math3  $|\square|$   $\frac{d}{d\square} \square$   $\frac{d}{d\square} \square$   $\int \square$   $\lim_{\square \rightarrow \square} \square$

Trig  $\square \square$   $\left[ \square \right]$   $\left[ \square \right]$   $\Sigma \square$   $\int \square$

Var  $\square \square$   $\sin$   $\cos$   $\tan$   $\theta$   $t$

abc  $\leftarrow$   $\rightarrow$   $\square$   $\square$   $\text{ans}$  **EXE**

Deg Real  $\text{MODE}$

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62.3082543

$y = 1 + \sqrt{x}$

$x$

Analysis

- Trace
- Sketch
- G-Solve
  - x-Cal/y-Cal
  - Root
  - Min
  - Max
  - fMin
  - fMax
  - y-Intercept
  - Intersection
  - Integral
  - Inflection
  - Distance
  - $\pi \int f(x)^2 dx$

Math1 Line  $\frac{\square}{\square}$   $\sqrt{\square}$   $\pi$   $\rightarrow$

Math2  $\square^{\square}$   $e^{\square}$   $\ln$   $i$   $\infty$

Math3  $|\square|$   $\frac{d}{d\square} \square$   $\frac{d}{d\square} \square$   $\int \square$   $\lim_{\square \rightarrow \square} \square$

Trig  $\square \square$   $\left[ \square \right]$   $\left[ \square \right]$   $\Sigma \square$   $\int \square$

Var  $\square \square$   $\sin$   $\cos$   $\tan$   $\theta$   $t$

abc  $\leftarrow$   $\rightarrow$   $\square$   $\square$   $\text{ans}$  **EXE**

Deg Real  $\text{MODE}$

A window opens.

ClassPad is waiting for the lower bound of the volume of revolution.

Press the **1** key.

Complete the entries for the Lower and Upper limits for the volume of revolution and tap **OK**.

The volume of revolution is displayed graphically and a volume is shown at the bottom of the screen.

Tap on the volume to place it into the information bar.

ClassPad II interface showing the integral setup for volume of revolution. The function  $y = \sqrt{x+1}$  is entered. The integral is  $\int_1^4 \pi(\sqrt{x+1})^2 dx$ . The result is  $\frac{119 \cdot \pi}{6}$  and the approximate value is 62.3082543. The graph shows the curve  $y = \sqrt{x+1}$  from  $x=1$  to  $x=4$ . The lower bound is set to 1 and the upper bound is set to 4.

ClassPad II interface showing the 'Enter Value' dialog box. The function  $y = \sqrt{x+1}$  is entered. The integral is  $\int_1^4 \pi(\sqrt{x+1})^2 dx$ . The result is  $\frac{119 \cdot \pi}{6}$  and the approximate value is 62.3082543. The graph shows the curve  $y = \sqrt{x+1}$  from  $x=1$  to  $x=4$ . The lower bound is set to 1 and the upper bound is set to 4. The 'OK' button is highlighted.

ClassPad II interface showing the volume of revolution displayed graphically. The function  $y = \sqrt{x+1}$  is entered. The integral is  $\int_1^4 \pi(\sqrt{x+1})^2 dx$ . The result is  $\frac{119 \cdot \pi}{6}$  and the approximate value is 62.3082543. The graph shows the curve  $y = \sqrt{x+1}$  from  $x=1$  to  $x=4$ . The volume of revolution is shaded in blue. The lower bound is set to 1 and the upper bound is set to 4. The volume is displayed as  $\pi \int_1^4 f(x)^2 dx = 62.3082543$ .

ClassPad II interface showing the volume of revolution displayed graphically. The function  $y = \sqrt{x+1}$  is entered. The integral is  $\int_1^4 \pi(\sqrt{x+1})^2 dx$ . The result is  $\frac{119 \cdot \pi}{6}$  and the approximate value is 62.3082543. The graph shows the curve  $y = \sqrt{x+1}$  from  $x=1$  to  $x=4$ . The volume of revolution is shaded in blue. The lower bound is set to 1 and the upper bound is set to 4. The volume is displayed as  $\pi \int_1^4 f(x)^2 dx = 62.3082542857$ .