

<p>1. Find the area of the region bounded by the curve $y = \frac{x}{\tan x}$, the x-axis, $x = -\frac{\pi}{2}$ and $x = \frac{\pi}{2}$.</p>	<p>2. Find the exact area of the region bounded by the curve $y = \log_e(x-1)$, the y-axis, $y = 0$ and $y = 1$.</p>
<p>3. Find the exact area of the region bounded by the curve $y = \cot \frac{x}{2}$, the x-axis, $x = \frac{\pi}{2}$ and $x = \pi$.</p>	<p>4. Find the exact area of the region bounded by the curve $y = \cos^{-1}(x-1)$, the y-axis, $y = 0$ and $y = \pi$.</p>
<p>5. Find the area of the region bounded by the curves $y = \frac{2}{3} \sin^{-1} x$ and $y = \sin \frac{3x}{2}$.</p>	<p>6. Find the exact area of the region bounded by the curves $y = -2\sqrt{1-x^2}$ and $y = 2\sqrt{1-x^2}$.</p>
<p>7. Find the exact volume of the 3D shape formed by rotating the curve $y = 2\sqrt{1-x^2}$ about the x-axis.</p>	<p>8. Find the exact volume of the 3D shape formed by rotating the curves $y = -2\sqrt{1-x^2}$ and $y = 2\sqrt{1-x^2}$ about the y-axis for $x \in [0,1]$.</p>
<p>9. Given the curve $y = \frac{1}{\sqrt{1-x^2}}$, where $0 \leq x \leq \frac{\sqrt{3}}{2}$, find the exact volume of the 3D shape formed by rotating it about the y-axis.</p>	<p>10. Given the curve $y = (x-1)^2$, where $0 \leq x \leq 3$, find the exact volume of the 3D shape formed by rotating it about the y-axis.</p>
<p>11. Find the volume of the 3D shape formed by rotating the curve $y = x \sin x$ about the x-axis for $x \in [0,2]$.</p>	<p>Numerical, algebraic and worded answers.</p> <ol style="list-style-type: none"> 1. ≈ 2.178 2. e 3. $\log_e 2$ 4. π 5. ≈ 0.239 6. 2π 7. $16\pi/3$ 8. $8\pi/3$ 9. $\pi/2$ 10. $45\pi/2$ 11. ≈ 7.296