

- Baby Bear's porridge comes out of the pot a blistering 185° Fahrenheit. The cave is 55° . If his porridge cools to 150° in 1 minute, how long does it take to get *just right* – a perfect 120° ?
- Compute the limit.

a. $\lim_{x \rightarrow 0^+} \left(\frac{3x+1}{x} - \frac{1}{\sin x} \right)$

c. $\lim_{x \rightarrow 0} \left(\frac{x - \sin x}{x \tan x} \right)$

b. $\lim_{x \rightarrow 0} \left(\frac{3x+1}{x} - \frac{1}{\sin x} \right)$

- Evaluate.

a. $\csc^{-1}(\sqrt{2})$

c. $\cot \left(\sin^{-1} \left(-\frac{\sqrt{3}}{2} \right) \right)$

b. $\sin^{-1} \left(-\frac{\sqrt{3}}{2} \right)$

d. $\lim_{x \rightarrow -\infty} (\sec^{-1}(x))$

- Differentiate $y = \cot^{-1}(\sqrt{t-1})$

- Evaluate $\int \frac{dx}{x\sqrt{5x^2-4}}$.

- Consider the region between the curve $y = \sec^{-1} x$ and the x -axis, from $x = 1$ and $x = 2$.

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| a. Find the volume of the solid obtained by revolving this region about the y -axis. | c. Write the integral for the surface area obtained by revolving this region about the y -axis. |
| b. Write the integral for the solid obtained by revolving this region about the x -axis. | d. Write the integral for the surface area obtained by revolving this region about the x -axis. |

- Find the angle α .

