

Name: _____

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| <p>1. A triangle ABC has sides $AB = 4$ cm, $BC = 5$ cm, $AC = 8$ cm.</p> <p>(a) Find the sine of the largest angle in ABC. Give your answer as an exact value</p> <p>(b) Find the area of the triangle ABC</p> | <p>(a) The largest angle is opposite the largest side. Applying the cosine rule gives $\cos\theta = -\frac{23}{40}$ where θ is the largest angle. The sine of this is $\sqrt{1 - \left(-\frac{23}{40}\right)^2} = \frac{3\sqrt{119}}{40}$.</p> <p>(b) $\frac{1}{2}(4)(5)\sin\theta = \frac{1}{2}(4)(5)\frac{3\sqrt{119}}{40} = 8.181\dots \text{ cm}^2$</p> |
| <p>2. Sketch, on the same axes, sketch the curves with equation $y = \frac{1}{x}$, $y = \frac{3}{x}$ and $y = \frac{1}{x+2}$. On your sketches, show the coordinates of points where the curves cross or meet the coordinate axes and the equations of any asymptotes</p> | <p>https://www.desmos.com/calculator/jumbty6eo0</p> |
| <p>3. Find the equation of the normal to the curve $y = (1 - \sqrt{x})^2$ at the point $x = 4$</p> | <p>$y = 9 - 2x$</p> |
| <p>4. Solve the equation $5 \sin x - 3 \cos^2 x = 2$ for $0 < x < 540^\circ$</p> | <p>Solutions are</p> <p>$x = 44.688\dots$</p> <p>$x = 135.310\dots$</p> <p>$x = 404.688\dots$</p> <p>$x = 495.311\dots$</p> |