Precalculus Honors Reference Sheet

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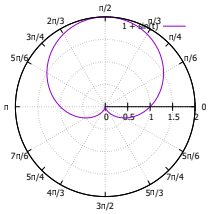
$$S_n = \frac{n}{2}(a_1 + a_n) \qquad \sum_{i=1}^{n} i = \frac{n}{2}(1+n) \qquad f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h} \qquad a \cdot b = ||a|| \cdot ||b|| \cdot cos\theta \qquad r = \sqrt{x^2 + y^2}$$

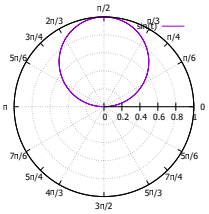
$$S_n = \frac{a_1(1-r^n)}{1-r} \qquad \sum_{i=1}^{n} i^2 = \frac{n(n+1)(2n+1)}{6} \qquad \lim_{x \to 0} \frac{sin(Ax)}{Ax} = 1 \qquad c^2 = a^2 + b^2 - 2ab \cdot cosC \qquad x = rcos\theta$$

$$S_\infty = \frac{a_1}{1-r} \qquad \sum_{i=1}^{n} i^3 = (\frac{n}{2}(1+n))^2 \qquad \lim_{x \to 0} \frac{1 - cos(Ax)}{Ax} = 0 \qquad \frac{a}{sinA} = \frac{b}{sinB} = \frac{c}{sinC} \qquad y = rsin\theta$$

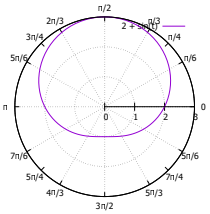
(a) Cardioid: $1 + sin\theta$



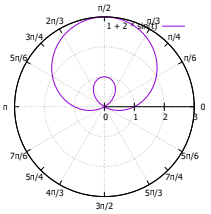
(b) Circle: $sin\theta$



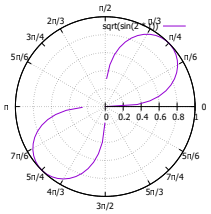
(c) Dimpled Limaçon: $2 + sin\theta$



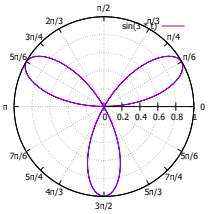
(d) Looped Limaçon: $1 + 2 \cdot sin\theta$



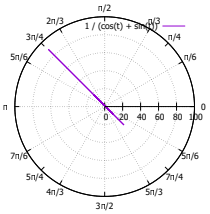
(e) Lemniscate: $\sqrt{sin2\theta}$



(f) Rose: $sin3\theta$



(g) Line: $\frac{1}{cos\theta + sin\theta}$



(h) Parabola: $\frac{1}{1-sin\theta}$