Week One Notes

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Introduction

1. First
$$e^{i\pi} + 1 = 0$$
2. Second
$$e = \lim_{n\to\infty} \left(1 + \frac{1}{n}\right)^n = \lim_{n\to\infty} \frac{n}{\sqrt[n]{n!}}$$
3. Third
$$e = \sum_{n=0}^{\infty} \frac{1}{n!}$$
$$e = 2 + \cfrac{1}{1 + \cfrac{1}{2 + \cfrac{2}{3 + \cfrac{3}{4 + \cfrac{4}{5 + \ddots}}}}}$$
4. Fourth
$$(a+b)^2 = a^2 + 2ab + b^2$$
$$(a-b)^2 = a^2 - 2ab + b^2$$
$$(a+b)(a-b) = a^2 - b^2$$
$$(x+a)(x+b) = x + (a+b)x + ab$$
$$(a+b+c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$$
$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$
$$(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$$

Formulas

$$\int_a^b f(x)dx$$

$$\iiint f(x,y,z)dxdydz$$

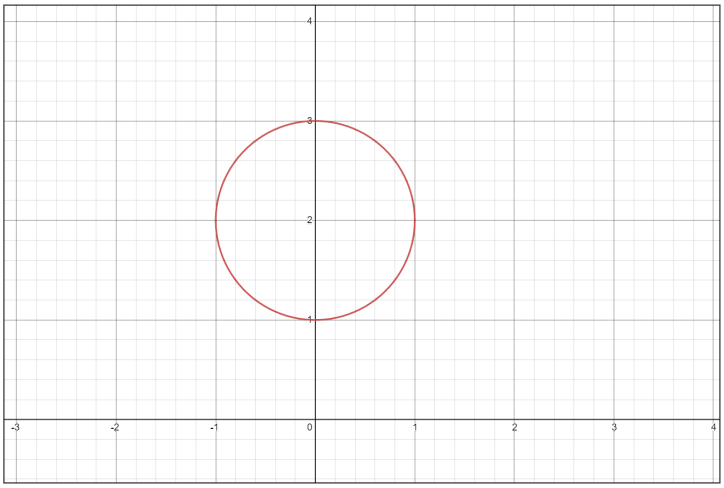
Algebra

$$\vec{v} =< v_1, v_2, v_3 >$$

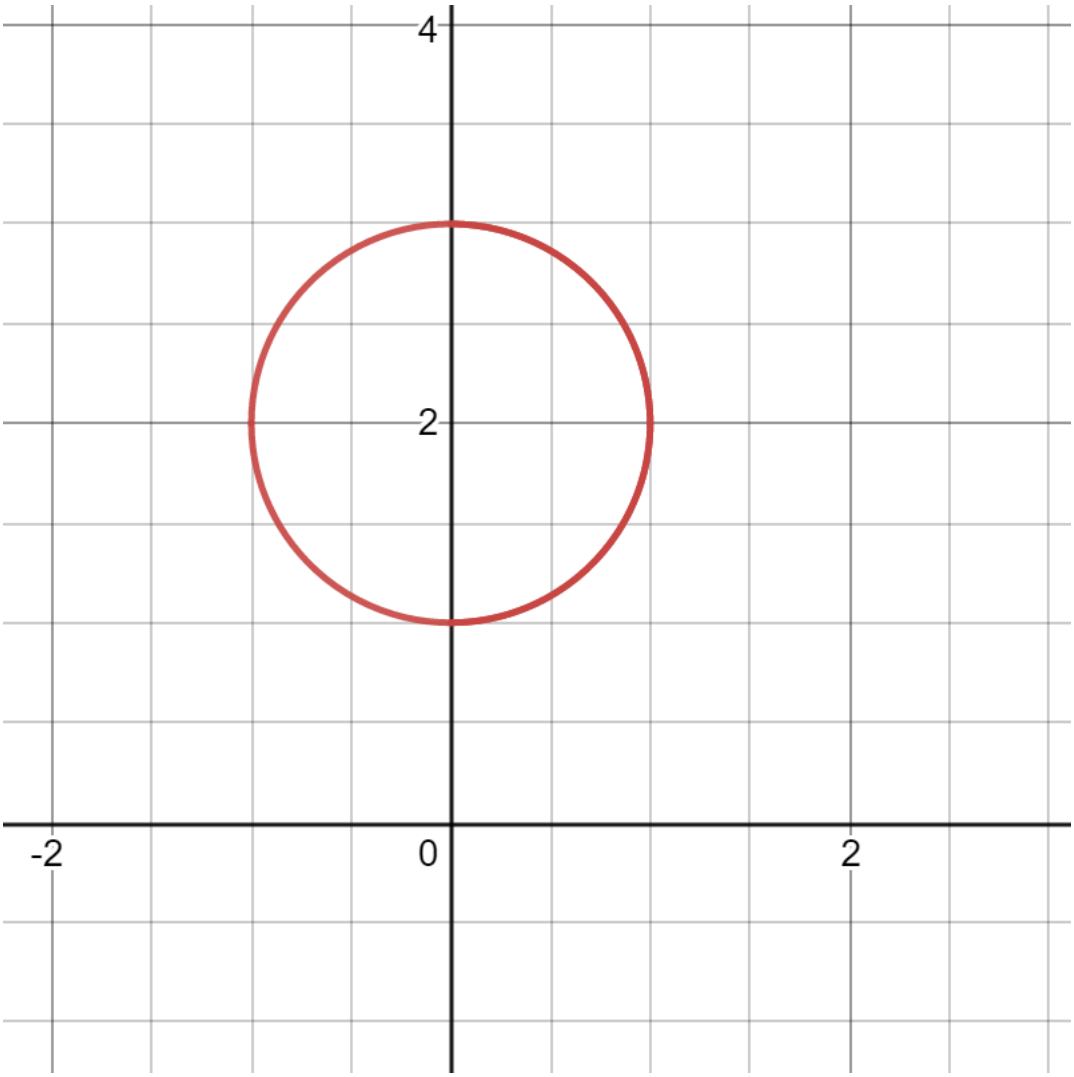
$$\vec{v} \cdot \vec{w}$$

Matrices

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$



1 $x^2 + (y-2)^2 = 1$


4
2
-2
0
2