PHYS 310 Formulas

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Vectors

$\rightharpoonaccent{A}=A\_{x}\hat{i}+A\_{y}\hat{j}$ $A\_{x}=Acos(θ)$ $A\_{y}=Asin(θ)$

$\left|A\right|=\sqrt{A\_{x}^{2}+A\_{y}^{2}}$ $θ=tan^{-1}\left({A\_{y}}/{A\_{x}}\right)$



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Equations of Motion for Constant Acceleration

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| --- | --- |
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|  |  |
| $$a\_{x}=0 and a\_{y}=-9.8 ^{m}/\_{s^{2}} for projectile$$ |  |

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Forces and Newton’s Laws of Motion

|  |  |
| --- | --- |
|  (free fall acceleration) |  |
|    |  |
|  (Gravitational Force) |  |
| (Weight) | (Static Friction) |
| (Kinetic Friction) | (Spring) |

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Oscillations and Rotational Motion

|  |  |
| --- | --- |
| $v\_{T}=rω$ (Tangential velocity) |  (Centripetal acceleration) |
|  (Centripetal force) |  |
|  |  |
|  | $a\_{T}=rα$ (Tangential acceleration) |
|  |  |

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