

COMPLEX NUMBERS-- standard form of a complex number:

$$r = \underline{\hspace{2cm}} \text{ or } \underline{\hspace{2cm}} =$$

Formula for modulus or absolute value:

$$\theta = \underline{\hspace{2cm}} =$$

Formula for argument:

How to find x -coordinate:

How to find y -coordinate:

Complex polar form or Trigonometric form of a complex number:

Complex conjugates =

Product of complex numbers:

Quotient of complex numbers:

DeMoivre's Theorem: If $z = r(\cos \theta + i \sin \theta)$, then $z^n = r^n[\cos(n\theta + i \sin(n\theta))]$

n th roots of complex numbers: $z = r(\cos \theta + i \sin \theta)$ has exactly n distinct n th roots given by :
 $r^{\frac{1}{n}}[\cos \alpha + i \sin \alpha]$, where $\alpha = \frac{\theta+360^\circ k}{n}$ or $\alpha = \frac{\theta+2\pi k}{n}$

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PARAMETRIC EQUATIONS-- standard form of a parametric equations:

$v =$ velocity $=$ speed

Formula for velocity: $v = \sqrt{x^2 + y^2}$

$\theta =$ angle of inclination $=$ angle made with ground

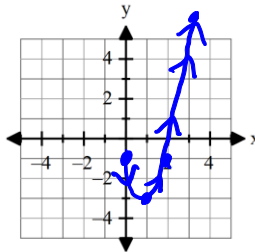
Formula for angle of inclination: $\tan^{-1}\left(\frac{y}{x}\right) = \theta$ (direction angle)

$t =$ parameter $=$ time

How to find x-coordinate: $x = (v_0 \cos \theta) t$

How to find y-coordinate: $y = -16t^2 + (v_0 \sin \theta) t + h_0$

Graph: plug t into eq. & graph pt of $x+y$



t	$x = t + 1$	y
-1	0	-1
0	1	-3
1	2	-1
2	3	5

$y = 2t^2 - 3$ $-1 \leq t \leq 2$
Graph $x+y$

Eliminate parameter: write one eq.

- ① get t alone in one eq.
- ② sub into other eq for t
- ③ solve for y

Write equations as parametric equations:

- ① find m_1, m_2, b_1, b_2 - use system of eq.

- OR
- ② know polar & trig functions to substitute

PARAMETRIC EQUATIONS-- standard form of a parametric equations:

$v =$ _____ $=$ _____

Formula for velocity:

$\theta =$ _____ $=$ _____

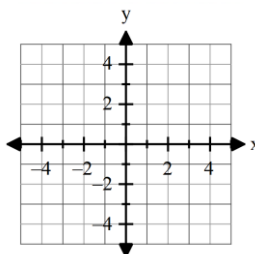
Formula for angle of inclination:

$t =$ _____ $=$ _____

How to find x-coordinate:

How to find y-coordinate:

Graph:



Eliminate parameter:

Write equations as parametric equations: