

Algebra 2 - Complex Conjugates and Complex Solutions - Test

Common Core N-CN.A.3, N-CN.C.7 · maths-pdf.fr/en/

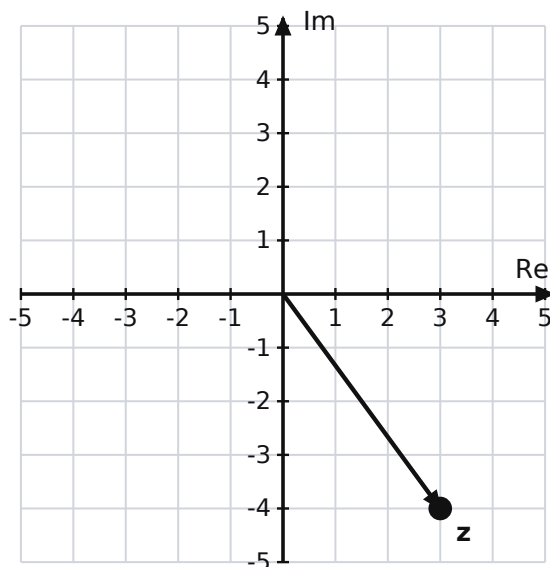
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test on complex conjugates, division and complex solutions has 9 questions worth 20 points in total. The questions move from direct skills to multi-step problems. Show your work, because partial credit is given for a correct setup and sound reasoning.

About this test

- Grade: Algebra 2
- Chapter: Complex Conjugates and Complex Solutions
- Standards: N-CN.A.3, N-CN.C.7
- Time: 45 minutes
- Total: 20 points

Question 1 - Conjugate and modulus [2 pts]



The point z .

The point z is shown. Write z , its conjugate, and $|z|$.

Question 2 - Divide [3 pts]

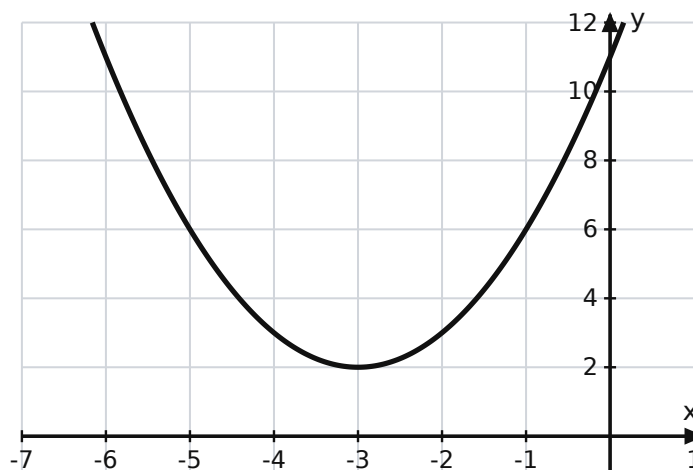
Divide and write each result in $a+bi$ form.

- a. $\frac{7+i}{1-i}$ (2 points)
b. $\frac{2-3i}{i}$ (1 point)

Question 3 - Quadratic formula [3 pts]

Solve $x^2-2x+5=0$ and $x^2+16=0$. (2 points) and (1 point)

Question 4 - Count real solutions [2 pts]



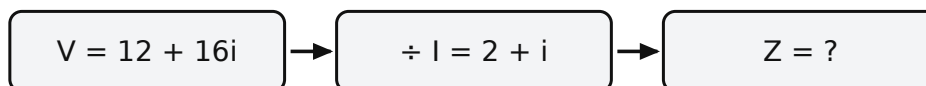
$$y = x^2 + 6x + 11$$

The graph of $y = x^2 + 6x + 11$ is shown. State how many real solutions $x^2 + 6x + 11 = 0$ has, then confirm with the discriminant.

Question 5 - Write the equation [2 pts]

Write a quadratic equation with real coefficients and solutions $1+4i$ and $1-4i$.

Question 6 - Impedance [2 pts]



$$Z = V \div I$$

Voltage is $12+16i$ volts and current is $2+i$ amps. Find the impedance $Z = V \div I$.

Question 7 - Modulus of a product [2 pts]

Let $z = 1 + 2i$. Find $z \cdot \bar{z}$ and compare it with $|z|^2$.

Question 8 - Projectile [2 pts]

The height of a ball is $h = -16t^2 + 48t$ feet. Can it reach 40 feet? Set $h = 40$ and use the discriminant.

Question 9 - Solve with a leading coefficient [2 pts]

Solve $3x^2 - 6x + 7 = 0$.