
Thursday: Career of the Week

Career Name: Forensic Scientist

What do schooling do you need for this job?

What is the average salary?

Do you need to live a certain region of the country?

How competitive is this career?

Division of Complex Numbers

Conjugate: The conjugate of a complex number is found by keeping the same real number and using the opposite of the imaginary number

Find the conjugate of the following

1. $3 + 2i$

$3 - 2i$

2. $-4 - 7i$

$-4 + 7i$

3. $7 - 2i$

$7 + 2i$

4. $-11 + 19i$

$-11 - 19i$

How to divide by an imaginary number

1. Multiply the numerator AND denominator by i

2. Simplify the fraction

5. $\frac{3}{i}$

$$\frac{3}{1} \cdot \frac{i}{i} = \frac{3i}{i^2}$$

$$\frac{3i}{-1} = \boxed{-3i}$$

6. $\frac{2-4i}{i} \cdot \frac{i}{i}$

$$\frac{2i-4i^2}{i^2}$$

$$\frac{2i-4(-1)}{(-1)}$$

$$\frac{4+2i}{-1} = \boxed{-4-2i}$$

7. $\frac{23-2i}{-6i} \cdot \frac{i}{i}$

$$\frac{23i-2i^2}{-6i^2}$$

$$\frac{23i-2(-1)}{-6(-1)}$$

$$\boxed{\frac{2+23i}{6}}$$

How to divide complex numbers

1. Find the conjugate of the DENOMINATOR
2. Multiply the numerator AND the denominator by the conjugate
3. Simplify the fraction

8. $\frac{3}{5-2i}$

$$\frac{3 \cdot \frac{5+2i}{5+2i}}{5-2i \cdot \frac{5+2i}{5+2i}}$$

$$\frac{15+6i}{25+10i-10i-4i^2}$$

$$\frac{15+6i}{25-4(-1)} = \boxed{\frac{15+6i}{29}}$$

9. $\frac{12-4i}{4-2i}$

$$\frac{(12-4i) \cdot \frac{4+2i}{4+2i}}{(4-2i) \cdot \frac{4+2i}{4+2i}}$$

$$\frac{48+24i-16i-8i^2}{16+8i-8i-4i^2}$$

$$\frac{48+8i-8(-1)}{16-4(-1)}$$

$$\frac{56+8i}{4 \cdot 20}$$

$$\boxed{\frac{14+2i}{5}}$$

10. $\frac{2-3i}{1-6i}$

$$\frac{(2-3i) \cdot \frac{1+6i}{1+6i}}{(1-6i) \cdot \frac{1+6i}{1+6i}}$$

$$\frac{2+12i-3i-18i^2}{1+6i-6i-36i^2}$$

$$\frac{2+9i-18(-1)}{1-36(-1)}$$

$$\frac{20+9i}{1+36}$$

$$\boxed{\frac{20+9i}{37}}$$

$$\frac{10 - 3i}{-3}$$

$$\frac{-10 + 3i}{3}$$

the dog
went to
the park.

Factoring (X)

GCF (Always)

Difference of P. Squares (2 terms)
P. sq & -

Trinomial (3 terms)

-> $a = 1$

-> $a \neq 1$ (Guess & check)

Group (4 terms)

Solving $x = \#$

- Factoring
- Taking Sq. Root.

imaginary/complex

- Cycle of i i^{752}
- Add/Sub
- Mult.
- Divide.