

Overview of problems



Example Set: A

Write the number using the imaginary unit i

$$\sqrt{-36}$$

$$-\sqrt{-1}$$

$$\sqrt{-7}$$

$$\sqrt{-9}$$

$$\sqrt{-4}$$

$$-\sqrt{-3}$$

Simplify the expression

$$i^2$$

$$(\sqrt{-5})^2$$

$$-i^2$$

$$(4i)^2$$

$$(3i)(2i)$$

$$(-2i)^3$$



Example Set: B

Simplify the expression

$$(4 + 2i) + (5 + 3i)$$

$$(1 + 3i) - (6 + 9i)$$

$$(7 + 5i) - (5 + 2i) + 10i^2$$

$$(3 + 2i)(4 - 4i)$$

$$(-6 - i)(9 + 5i)$$

$$5i(4 + 2i) + 6i^2 - 3$$

$$6i[2i(2 + 3i) - (-5 + 4i)]$$



Example Set: C

Simplify the expression using the conjugate

$$\frac{3}{(4 + 2i)}$$

$$\frac{(2 + 2i)}{(3 - 9i)}$$

$$\frac{(-1 - 5i)}{(7 + 4i)}$$

$$\frac{(6 + 9i)}{2i}$$



Example Set: D

graph the complex number

$$2 + 2i$$

$$5 - 7i$$

$$3 + 4i$$

$$-8 - 12i$$

$$-4i$$



Example Set: E

Solve the following equations

$$x^2 - 2x + 2 = 0$$

$$3x^2 - 12x + 18 = 0$$

Overview of problems- KEY



Example Set: A

Write the number using the imaginary unit i

$$\sqrt{-36} \quad \pm 6i$$

$$\sqrt{-9} \quad \pm 3i$$

$$-\sqrt{-1} \quad -i$$

$$\sqrt{-4} \quad \pm 2i$$

$$\sqrt{-7} \quad \sqrt{7}i$$

$$-\sqrt{-3} \quad -\sqrt{3}i$$

Simplify the expression

$$i^2 \quad -1$$

$$(4i)^2 \quad -16$$

$$(\sqrt{-5})^2 \quad -5$$

$$(3i)(2i) \quad -6$$

$$-i^2 \quad 1$$

$$(-2i)^3 \quad 8i$$



Example Set: B

Simplify the expression

$$(4 + 2i) + (5 + 3i) \quad 9 + 5i$$

$$(1 + 3i) - (6 + 9i) \quad -5 - 6i$$

$$(7 + 5i) - (5 + 2i) + 10i^2 \quad -8 + 3i$$

$$(3 + 2i)(4 - 4i) \quad 20 - 4i$$

$$(-6 - i)(9 + 5i) \quad -49 - 39i$$

$$5i(4 + 2i) + 6i^2 - 3 \quad -19 + 20i$$

$$6i[2i(2 + 3i) - (-5 + 4i)] \quad -6i$$



Example Set: C

Simplify the expression using the conjugate

$$\frac{3}{(4 + 2i)}$$

$$\frac{12 - 6i}{20}$$

$$\frac{(2 + 2i)}{(3 - 9i)}$$

$$\frac{-12 + 24i}{90}$$

$$\frac{(-1 - 5i)}{(7 + 4i)}$$

$$\frac{-27 - 31i}{65}$$

$$\frac{(6 + 9i)}{2i}$$

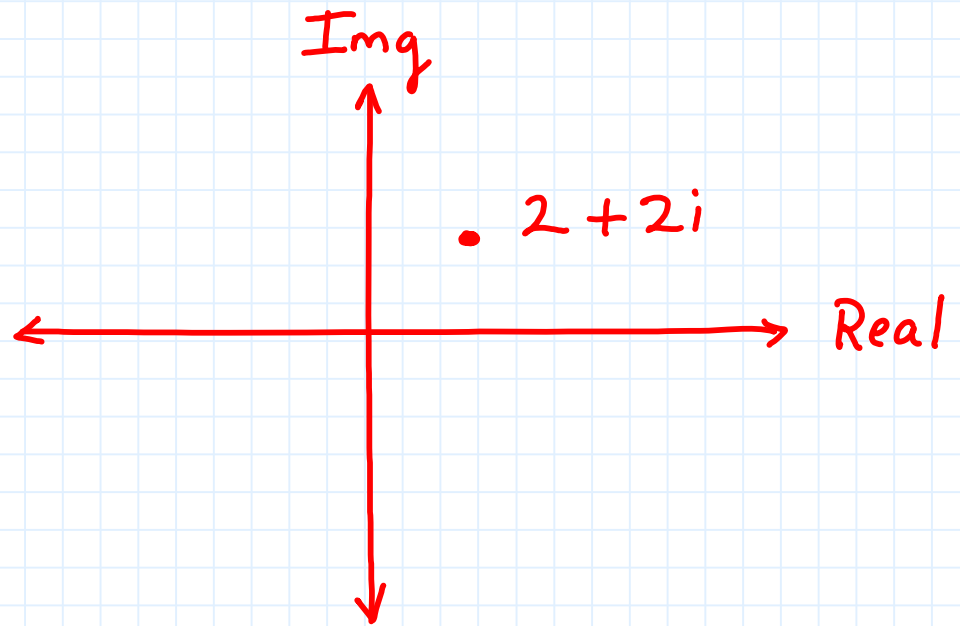
$$\frac{-18 + 12i}{-4}$$



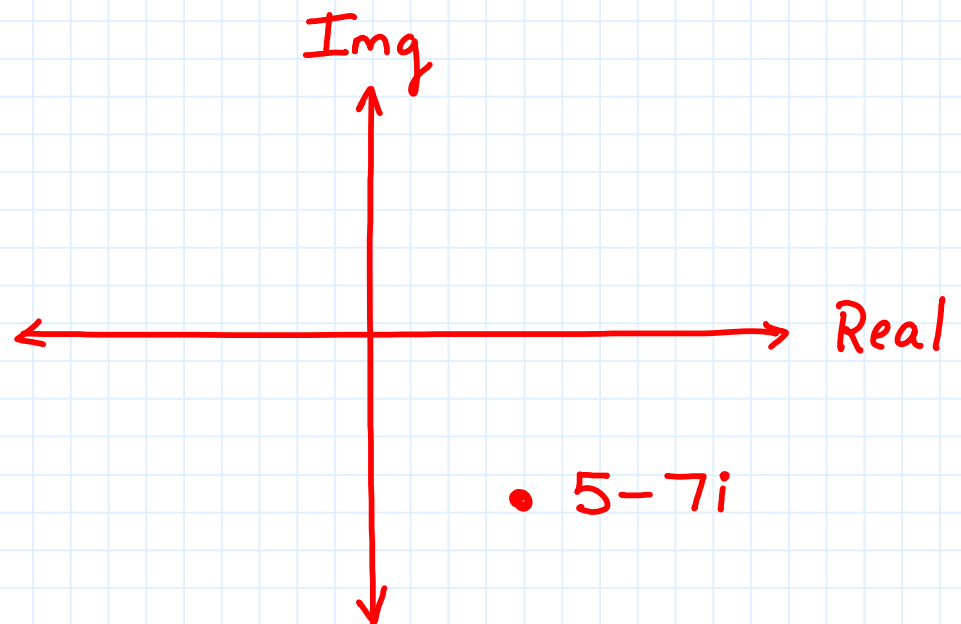
Example Set: D

graph the complex number

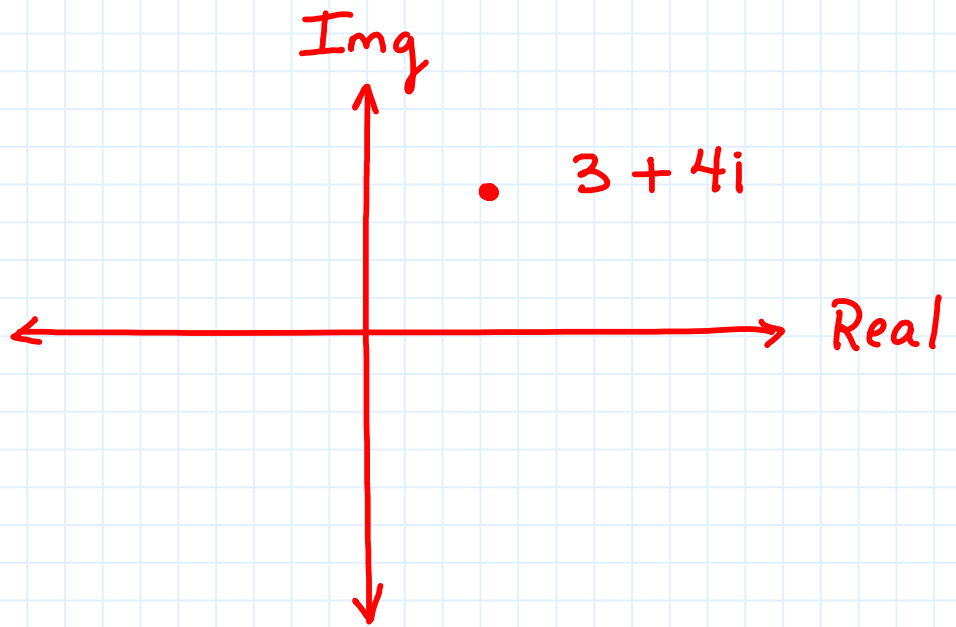
$$2 + 2i$$



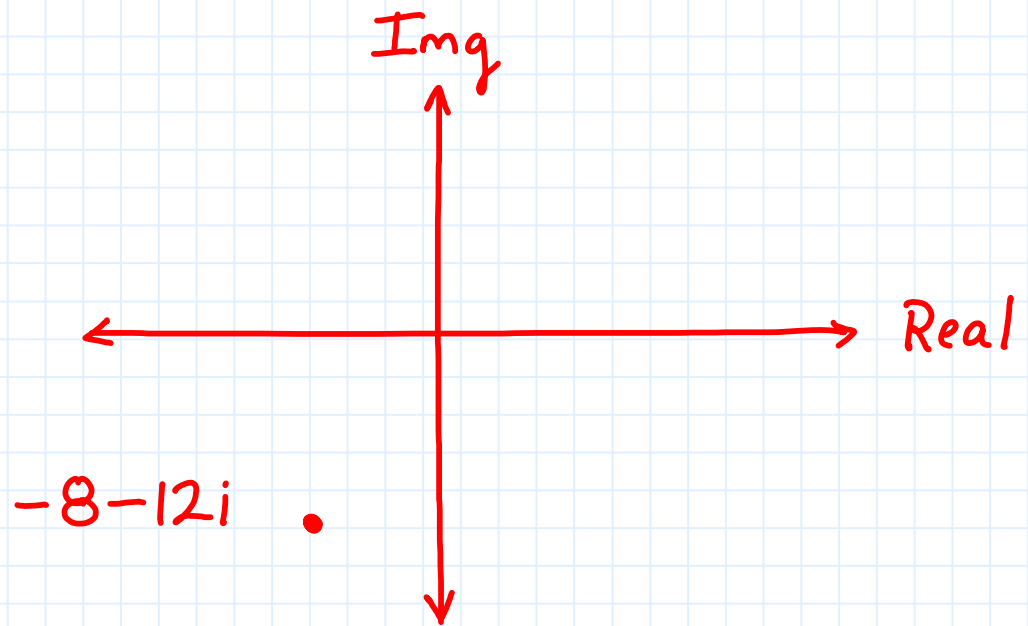
$$5 - 7i$$



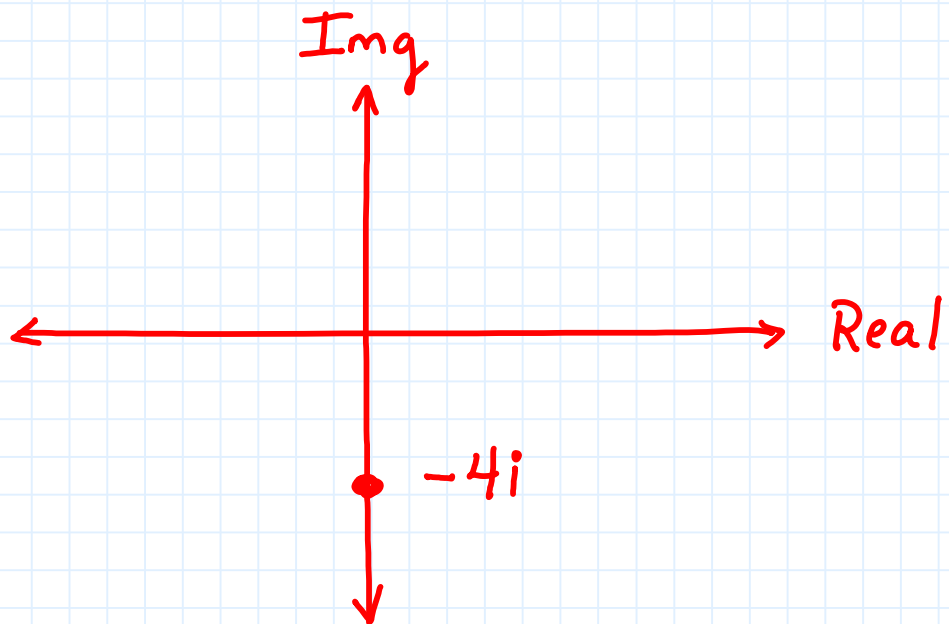
$$3 + 4i$$



$$-8 - 12i$$



$$-4i$$





Example Set: E

Solve the following equations

$$x^2 - 2x + 2 = 0$$

$$x = 1 \pm i$$

$$3x^2 - 12x + 18 = 0$$

$$x = 2 \pm \sqrt{2}i$$