

COMPEX NUMBERS

Agenda:

Objective:

Review For Complex Numbers Test

- 1) Take out HW to be Checked
- 2) Review Problems for Complex Number Test

HW: Finish review problems for Complex Number Test

Complex Number Review

1.

Multiply: $(3 + 5i)(3 - 5i)$

Choose:

- 9 - 25i
- 25
- 34

Explanation

2.

Multiply: $(8 + 9i)(7 - 3i)$

Choose:

- 15 - 12i
- 29 - 39i
- 83 + 39i

Explanation

3.

Multiply: $(4 - 3i)(3 - 4i)$

Choose:

- 25
- 25i
- 12 - 12i

Explanation

4.

Simplify: $(2 + 5i)^2$ 

Choose:

- 21 + 20i
- 21 + 20i
- 29 + 20i

Explanation

5.

Simplify: $8 + i(8 - i)$ 

Choose:

- 7 + 8i
- 8 + 8i
- 9 + 8i

Explanation

1.



Find the solution set of the given equation Answer
over the set of complex numbers.

$$x^2 + 10x + 29 = 0$$

$$x = \frac{-10 \pm \sqrt{100 - 116}}{2}$$

$$x = \frac{-10 \pm \sqrt{-16}}{2}$$

$$x = \frac{-10 \pm 4i}{2} \text{ reduce this fraction}$$

$$x = -5 \pm 2i$$

$$x = -5 + 2i \text{ or } x = -5 - 2i \text{ Answer}$$

2. Solve for x and express the roots of the equation in simplest $a + bi$ form:

$$\frac{x^2}{4} = 2x - 10$$

Answer

$$\frac{x^2}{4} = 2x - 10$$

$$\frac{4x^2}{4} = 4(2x) - 4(10) \text{ multiply each term by 4 (L.C.D.)}$$

to eliminate the fraction.

$$x^2 = 8x - 40$$

$$x^2 - 8x + 40 = 0$$

$$x = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(40)}}{2(1)}$$

$$\frac{8 \pm \sqrt{64 - 160}}{2}$$

$$x = \frac{8 \pm \sqrt{-96}}{2}$$

$$x = \frac{8 \pm \sqrt{16} \cdot \sqrt{6}}{2}$$

$$x = \frac{8 \pm 4\sqrt{6}}{2}$$

$$x = 4 \pm 2\sqrt{6}$$

$$x = 4 + 2\sqrt{6} \text{ or } x = 4 - 2\sqrt{6} \text{ Answer}$$

2.

Simplify:
 $i^{12} + i^{14} + i^{20} - i^6$



Choose:

- 0
 1
 2

Explanation

3.

Find the product of:
 $i^8 \cdot 2i^2 \cdot 4i^{10}$



Choose:

- 8
 4
 2i

Explanation

4.

Find the sum of:
 $5i^9 + i^5$



Choose:

- 6
 6i
 -6i

Explanation

5.



Find the value of:
 $(5i^3)^2$

Choose:

- 25
 -10
 -25

Explanation

1.

Simplify: $\sqrt{-25}$

Answer

2.

Simplify in terms of i :

$$-\sqrt{-81}$$

Answer

3.

Simplify in terms of i :

$$\sqrt{-175}$$

Answer

1.



Solve the following quadratic equation:

$$x^2 + 4 = 0$$

Answer

2.

Solve the following expression for x :

$$x^2 = -3$$

Answer

4. State the values of the a and b components of $a + bi$ form for each complex number. State whether the value is the **real part** or the **imaginary part** of the number:

- a) $3 - 2i$
- b) $-2 - i$
- c) $3i$
- d) $0 + 0i$
- e) $-7 - 4i$

Answer

5. Write the following numbers in standard $a + bi$ form.

Answer

- a) 17 b) $15i$ c) $-5 + 3i$

1.

Find the absolute value of the complex number:

$$\sqrt{5} - i$$



Answer

2.



Find the distance from the origin to this point.

$$-4i$$

Answer

3.

If $z = \sqrt{3} + 3i$, find $|z|$.



Answer

4.



Find the absolute value of the complex number

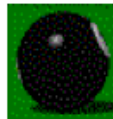
$$5 - 12i$$

Answer

5.

Find the distance from the origin to this point.

$$-7 + i$$



Answer

Find the absolute value of each complex number.

1) $|7 - i|$

2) $|-5 - 5i|$

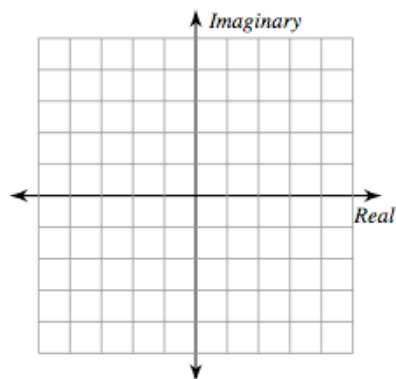
3) $|-2 + 4i|$

4) $|3 - 6i|$

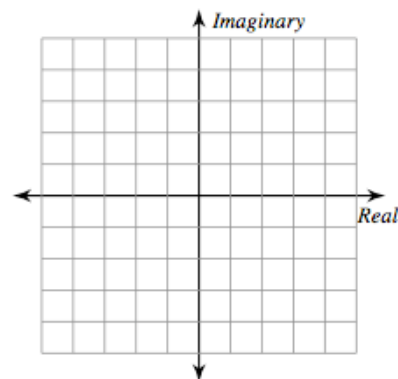


Graph each number in the complex plane.

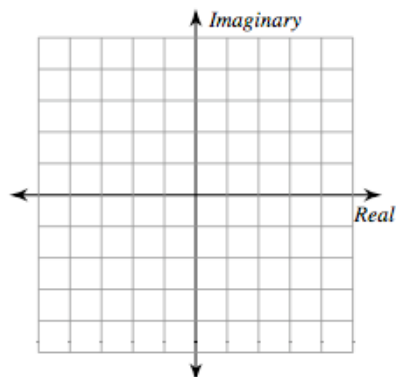
11) $-3 + 4i$



12) $-1 + 5i$



13) $-1 - 4i$



14) $4 + 4i$

