

Complex Numbers

$$a + bi$$

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

Operations of Complex Numbers

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

$$(i)^2 = (\sqrt{-1})^2$$

$$i^2 = -1$$

$$(x+2)(x-5)$$

Simplify each imaginary number.

$$\frac{\sqrt{-25}}{\sqrt{25} \cdot \sqrt{-1}}$$

$$5i$$

$$\pm \sqrt{-36}$$

$$\pm 6i$$

$$i + 6i$$

$$7i$$

$$-3 + 6i - (-5 - 3i) - 8i$$

$$\boxed{-3} + \boxed{6i} + \boxed{5} + \boxed{3i} - \boxed{8i}$$

$$2 - i$$

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

$$-8 - 2i - 4i - i^2$$

$$-8 - 6i - (-1)$$

$$-7 - 6i$$

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

$$4 - 6i + 6i - 9i^2$$

$$4 - 9(-1)$$

$$\frac{\sqrt{-81}}{\sqrt{81} \cdot \sqrt{-1}}$$

$$9i$$

$$\sqrt{-3}$$

$$\sqrt{3} \cdot \sqrt{-1}$$

$$\sqrt{3}i = i\sqrt{3}$$

$$\frac{-\sqrt{-100}}{(\sqrt{100} \cdot \sqrt{-1})}$$

$$-10i$$

$$\boxed{-1} - \boxed{8i} - \boxed{4} - \boxed{i}$$

$$-5 - 9i$$

$$4i(-2 - 8i)$$

$$-8i - 32i^2$$

$$-8i - 32(-1)$$

$$-8i + 32$$

$$32 - 8i$$

$$(8 + 3i)^2$$

$$(8 + 3i)(8 + 3i)$$

$$64 + 24i + 24i + 9i^2$$

$$64 + 48i + 9(-1)$$

$$64 + 48i - 9$$

$$55 + 48i$$

$$2x(x+3)$$