Question 1.

Identify the real and imaginary parts of the given number. Then tell which of the following sets the number belongs to: real numbers, imaginary numbers, and complex numbers.

$7 + i$

The real part of $7 + i$ is _____, and the imaginary part is _____.

The number $7 + i$ belongs to which of the following sets? Select all that apply.

- **A.** imaginary numbers
- **B.** complex numbers
- **C.** real numbers

Question 2.

Find the sum of the binomials $6 + 3x$ and $3 - 8x$.

$(6 + 3x) + (3 - 8x) =$ ☐ $-$ ☐ x

Complete the explanation of how you can use the result to find the sum of the complex numbers $6 + 3i$ and $3 - 8i$.

Replacing ? **with the imaginary unit** ? **gives this result:**

$(6 + 3i) + (3 - 8i) =$ ☐ $-$ ☐ i.

Question 3.

Find the product of the binomials $5 - 3x$ and $2 + x$.

$(5 - 3x)(2 + x) =$ ☐ $-$ ☐ $x -$ ☐ x^2

Complete the explanation of how you can use the result to find the product of the complex numbers $5 - 3i$ and $2 + i$.

Replacing ? **with the imaginary unit** ? **gives this result:**
$(5 - 3i)(2 + i) =$ ☐ $-$ ☐ $i -$ ☐ i^2.

Because $i^2 =$ ☐**, the result can be further simplified as follows:**
☐ $-$ ☐ i.

Question 4.

Add the complex numbers.

$(7 + 6i) + (2 + 13i) =$ ☐ $+$ ☐ i

Question 5.

Subtract the complex numbers.

$(3 + i) - (7 + 9i) =$ ☐ $-$ ☐ i

Question 6.

Multiply $3 + 5i$ and $2 + i$.

$(3 + 5i)(2 + i) =$ ☐ $+$ ☐ i.

Question 7.

Multiply.

$(-4 + 12i)(-4 - 6i)$

The product is $\square$.

Question 8.

Multiply.

$(7 - i)(7 + i)$

The product is $\square$.
