

1. Find this product. $(7 - 3i)(8 - 2i)$

2. Find all real and non-real solutions. $x^3 + 4x^2 + 6x = 0$

1. Find this product. $(7 - 3i)(8 - 2i)$

$$\begin{array}{r}
 \begin{array}{|c|c|}
 \hline
 7 & -3i \\
 \hline
 8 & 56 & -24i \\
 \hline
 -2i & -14i & +6i^2 \\
 \hline
 \end{array}
 &
 = 56 - 24i - 14i + 6i^2 \\
 &
 = 56 - 38i + 6(-1) \\
 &
 = 56 - 38i - 6 \\
 &
 = \boxed{50 - 38i}
 \end{array}$$

2. Find all real and non-real solutions. $x^3 + 4x^2 + 6x = 0$

$$\begin{array}{l}
 x(x^2 + 4x + 6) = 0 \\
 \swarrow \quad \searrow \\
 x = 0 \quad \text{non factorable.} \\
 \quad \quad \text{use quadratic formula} \\
 \quad \quad b^2 - 4ac = -8 \\
 \quad \quad x = \frac{-4 \pm \sqrt{-8}}{2} \rightarrow 4.2 \\
 \quad \quad x = \frac{-4 \pm 2i\sqrt{2}}{2} \\
 \quad \quad x = -2 \pm i\sqrt{2}
 \end{array}$$

$$\boxed{x = 0, -2 \pm i\sqrt{2}}$$