

Simplify each.

1. $(4 - 6i)^2$

2. $(7 + 3i)(7 - 3i)$

3. i^{543}

4. Find ALL solutions.

$2(3x - 7)^2 + 31 = 7$

5. Solve by completing the square. $3x^2 + 7x - 11 = 0$

Simplify each.

1. $(4 - 6i)^2$

4	-6i
16	-24i
-24i	+36i
-36	

$-20 - 48i$

2. $(7 + 3i)(7 - 3i)$

$= 49 - 9i^2$
 $= 49 + 9$
 $= 58$

4. Find ALL solutions.

$2(3x - 7)^2 + 31 = 7$
 $-31 -31$

$\frac{2(3x - 7)^2}{2} = \frac{-24}{2}$
 $\sqrt{(3x - 7)^2} = \sqrt{-12}$

5. Solve by completing the square. $3x^2 + 7x - 11 = 0$

$\frac{3x^2 + 7x}{3} = \frac{11}{3}$

$x^2 + \frac{7}{3}x + \frac{49}{36} = \frac{11}{3} + \frac{12}{12} + \frac{49}{36} = \frac{132}{36} + \frac{49}{36}$
 $\frac{1}{2} \cdot \frac{7}{3} = \frac{7}{6}$
 $\sqrt{(x + \frac{7}{6})^2} = \sqrt{\frac{181}{36}} \rightarrow x + \frac{7}{6} = \pm \frac{\sqrt{181}}{6}$

$x = \frac{-7 \pm \sqrt{181}}{6}$
 or
 $\frac{-7 \pm \sqrt{181}}{6}$

Answers

3. i^{543}

$4 \overline{) 543}$
 $135 \quad r=3$
 $4 \overline{) 14}$
 $3 \quad r=2$
 $2 \overline{) 20}$
 $10 \quad r=0$

$i^1 = i$
 $i^2 = -1$
 $i^3 = -i$
 $i^4 = 1$

$i^{543} = -1$

$3x - 7 = \pm 2i\sqrt{3}$

$x = \frac{7 \pm 2i\sqrt{3}}{3}$