Simplify.

1. $\sqrt{54}$	2. $\sqrt{108}$	3. $\sqrt{-81}$	4. $\sqrt{-98}$
Answer: $3\sqrt{6}$	Answer: $6\sqrt{3}$	Answer: $9i$	Answer: $7i\sqrt{2}$

Solve Using Square Roots. Give an EXACT answer (no decimals).

5. $(x-7)^2+8=33$	6. $2x^2-17=143$	7. $(x+16)^2=-100$
$(x-7)^2=25$ $\sqrt{(x-7)^2}=\pm\sqrt{25}$ $x-7=\pm5$	$2x^2=160$ $x^2=80$ $\sqrt{x^2}=\pm4\sqrt{5}$ $x=\pm4\sqrt{5}$	$(x+16)^2=-100$ $\sqrt{(x+16)^2}=\pm\sqrt{-100}$ $x+16=\pm10i$
Answer: $x=2$ & $x=12$	Answer: $x=-4\sqrt{5}$ & $x=4\sqrt{5}$	Answer: $x=-16-10i$ & $x=-16+10i$

Solve using Quadratic Formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

8. $x^2 + 2x - 1 = 0$

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

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

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

Answer:

$x = -1 + \sqrt{2}$ & $x = -1 + \sqrt{2}$

9. $x^2 - 6x = -58$

First, set it equal to zero: $x^2 - 6x + 58 = 0$

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(58)}}{2(1)}$$

$$x = \frac{6 \pm \sqrt{-196}}{2(1)}$$

$$x = \frac{-6 \pm 14i}{2}$$

Answer:

$x = 3 - 7i$ & $x = 3 + 7i$