Solve by Square Root Method

What value(s) of x make the equations true?

a) $x^2 = 81$

$x = \pm 9$

b) $x^2 = -81$

$x = \pm 9i$

c) $(x + 1)^2 = 4$

$x = 1, -3$

Solve each equation.

d) $2x^2 - 3 = 29$

$+3 \quad +3$

$2x^2 = 32$

$\sqrt{x^2} = \sqrt{16}$

$\boxed{x = \pm 4}$

e) $5 + 7x^2 = 89$

$-5 \quad -5$

$7x^2 = 84$

$\sqrt{x^2} = \sqrt{12}$

$x = \pm\sqrt{12}$

$\boxed{x = \pm 2\sqrt{3}}$

f) $x^2 + 100 = 0$

$\sqrt{x^2} = \sqrt{-100}$

$x = \pm 10i$

Solve each equation.

g) $\frac{4(x+1)^2}{4} = \frac{60}{4}$

$\sqrt{(x+1)^2} = \sqrt{15}$

$(x+1) = \pm\sqrt{15}$

$x = -1 \pm \sqrt{15}$

h) $42 = 2 - (x-2)^2$

$-2 \quad -2$

$\frac{40}{-1} = \frac{-(x-2)^2}{-1}$

$\sqrt{-40} = \sqrt{(x-2)^2}$

$\pm i\sqrt{40} = x - 2$

$\pm 2i\sqrt{10} = x - 2$

$2 \pm 2i\sqrt{10} = x$

i) $(x+6)^2 + 5 = -20$

$\sqrt{(x+6)^2} = \sqrt{-25}$

$x + 6 = \pm 5i$

$x = -6 \pm 5i$

Solve each equation.

j) $2x^2 = 7$

$\sqrt{x^2} = \sqrt{\frac{7}{2} \frac{\sqrt{2}}{\sqrt{2}}}$

$\boxed{x = \pm \frac{\sqrt{14}}{2}}$

k) $6(x + 3)^2 = 20$

l) $5x^2 - 54 = 0$

Review: Simplifying Radicals.

a) $7\sqrt{50}$

b) $\dfrac{1}{\sqrt{6}}$

c) $\dfrac{5}{2+\sqrt{5}}$

Review: Perform the indicated operation. Write your answer in standard form.

a) $3(4-3i)+5(2+i)$

b) $(5-8i)^2$

c) $\dfrac{10}{2+i}$

Review: Solve each quadratic by factoring.

a) $(x - 2)(x + 3) = 6$

b) $0 = 3x^2 - 27$

c) $7x^2 = 18x - 11$