Factor

$a^2 - 49$

$(a - 7)(a + 7)$

$a^2 + 49$

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

$(7i)(-7i)$

$-49i^2$

49

$k^2 + 121$

$(k + 11i)(k - 11i)$

$81x^2 + 121y^2$

$(9x + 11yi)(9x - 11yi)$

2.4   34-36

38, 39

Solve

$$x^2 + 36 = 0$$

Solve by Square root

$$x^2 + 36 = 0$$

$$\sqrt{x^2} = \sqrt{-36} \qquad \sqrt{36} \cdot \sqrt{-1}$$

$$x = \pm 6i$$

Solve by Factoring

$$x^2 + 36 = 0$$

$$(x + 6i)(x - 6i) = 0$$

| $x + 6i = 0$ | $x - 6i = 0$ |
| $x = -6i$ | $x = 6i$ |

$$4x^2 + \frac{1}{9} = 0$$

$$\frac{-\frac{1}{9}}{\frac{4}{1}} \cdot \frac{1}{4}$$

$$4x^2 + \frac{1}{9} = 0$$

$$\frac{4x^2}{4} = \frac{-\frac{1}{9}}{4}$$

$$\sqrt{x^2} = \sqrt{-\frac{1}{36}}$$

$$x = \pm\frac{1}{6}i$$

$$4x^2 + \frac{1}{9} = 0$$

$$\left(2x + \frac{1}{3}i\right)\left(2x - \frac{1}{3}i\right) = 0$$

$$2x + \frac{1}{3}i = 0 \qquad 2x - \frac{1}{3}i = 0$$

$$\frac{2x}{2} = \frac{-\frac{1}{3}i}{2} \qquad 2x = \frac{1}{3}i$$

$$x = -\frac{1}{6}i \qquad x = \frac{1}{6}i$$

$25x^2 + 9 = 0$

$25x^2 = -9$

$\sqrt{x^2} = \sqrt{-\dfrac{9}{25}}$

$x = \pm \dfrac{3}{5}i$

$(5x+3i)(5x-3i) = 0$

$5x+3i = 0 \qquad 5x-3i = 0$

$5x = -3i \qquad\qquad 5x = 3i$

$x = -\dfrac{3}{5}i \qquad\qquad x = \dfrac{3}{5}i$

41, 43, 45
48, 49