

NOTES: Simplifying Radicals

1. $\sqrt{100} = \boxed{10}$

2. $\sqrt{490} = \boxed{7\sqrt{10}}$
 $\sqrt{49 \cdot 10}$
 $\sqrt{7 \cdot 7 \cdot 5 \cdot 2}$

3. $6\sqrt{32} = 6 \cdot 4\sqrt{2} = \boxed{24\sqrt{2}}$
 $\sqrt{16 \cdot 2}$
 $\sqrt{4 \cdot 4 \cdot 2}$

4. $-2\sqrt{210} = \boxed{-2\sqrt{210}}$
 $\sqrt{21 \cdot 10}$
 $\sqrt{7 \cdot 3 \cdot 5 \cdot 2}$

5. $-6\sqrt{294} = -6 \cdot 7\sqrt{6} = \boxed{-42\sqrt{6}}$
 $\sqrt{49 \cdot 6}$
 $\sqrt{7 \cdot 7 \cdot 6}$

6. Use the quadratic formula (simplify the radical):

$$-3x^2 + 6x + 5 = 0$$

$$a = -3 \quad b = 6 \quad c = 5$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-6 \pm \sqrt{(6)^2 - 4(-3)(5)}}{2(-3)} = \frac{-6 \pm \sqrt{36 + 60}}{-6} = \frac{-6 \pm \sqrt{96}}{-6}$$

$\sqrt{96} = 4\sqrt{6}$
 $\sqrt{16 \cdot 6}$
 $\sqrt{4 \cdot 4 \cdot 6}$

$$x = \frac{-6 \pm 4\sqrt{6}}{-6}$$

← exponent

$$3^{\textcircled{2}} = 3 \cdot 3 = \underline{\underline{9}}$$

← square root, radical

$$\sqrt{9} = 3$$

Factors (factor trees):

