Simplify. $(x + 7)(x - 7)$

$x^2 - 49$

Simplify. $(8 - \sqrt{3})(8 + \sqrt{3})$

$64 - 3$

$= 61$

Two terms that have the form: (a+b) and (a-b)

are called CONJUGATES.

The product of Conjugates is ALWAYS:

$(A+B)(A-B)=A^2 - B^2$

Find the product of this pair of conjugates.

$(9+\sqrt{11})(9-\sqrt{11}) = 81 - 11 = \boxed{70}$

Find the product of this pair of conjugates.

$(6-3\sqrt{5})(6+3\sqrt{5})$

$36 - 9 \cdot 5$

$36 - 45 = \boxed{-9}$

Rationalize the denominator.

$$\frac{10}{4+\sqrt{6}} \cdot \frac{4-\sqrt{6}}{4-\sqrt{6}} = \frac{10(4-\sqrt{6})}{10}$$

$16 - 6$

$= \boxed{4-\sqrt{6}}$

To rationalize a denominator involving a sum or difference involving square roots you multiply the numerator and denominator by the

Conjugate of the Denominator.

Rationalize the denominator.

$$\frac{11+\sqrt{5}}{3-4\sqrt{5}} \cdot \frac{3+4\sqrt{5}}{3+4\sqrt{5}} = \frac{53+47\sqrt{5}}{-71}$$

$9 - 16 \cdot 5$

$9 - 80$

	3	$+4\sqrt{5}$
11	33	$+44\sqrt{5}$
$+\sqrt{5}$	$+3\sqrt{5}$	20

Rationalize the denominator.

$$\frac{\sqrt{10}-\sqrt{2}}{\sqrt{3}+2} \cdot \frac{\sqrt{3}-2}{\sqrt{3}-2} = \frac{\sqrt{30}-\sqrt{6}-2\sqrt{10}+2\sqrt{2}}{3-4} = \frac{\sqrt{30}-\sqrt{6}-2\sqrt{10}+2\sqrt{2}}{-1}$$

$$= -\sqrt{3}+\sqrt{6}+2\sqrt{10}-2\sqrt{2}$$

Rationalize the denominator.

$$\frac{22}{\sqrt{7}-\sqrt{3}} \cdot \frac{\sqrt{7}+\sqrt{3}}{\sqrt{7}+\sqrt{3}} = \frac{22(\sqrt{7}+\sqrt{3})}{7-3} = \frac{22(\sqrt{7}+\sqrt{3})}{4}$$

$$\frac{11(\sqrt{7}+\sqrt{3})}{2}$$

$x \approx 20494.55$