Remember what the result ALWAYS is when you expand $(a + b)(a - b) = \boxed{a^2 - b^2}$

(A+B) & (A-B) are called conjugates

Simplify.

$$(\overset{a}{3} + \overset{b}{\sqrt{6}})(3 - \sqrt{6})$$

$$a^2 - b^2$$

$$= (3)^2 - (\sqrt{6})^2$$

$$= 9 - 6 = \boxed{3}$$

Simplify.

$$(\overset{a}{6} + \overset{b}{2\sqrt{11}})(6 - 2\sqrt{11})$$

$$a^2 - b^2$$

$$= (6)^2 - (2\sqrt{11})^2$$

$$= 36 - 2^2 \cdot (\sqrt{11})^2$$

$$= 36 - 4 \cdot 11 = 36 - 44 = \boxed{-8}$$

Expand and simplify.

$$(\overset{a}{8\sqrt{3}} - \overset{b}{\sqrt{2}})(8\sqrt{3} + \sqrt{2})$$

$$a^2 - b^2$$

$$= (8\sqrt{3})^2 - (\sqrt{2})^2$$

$$= 8^2 \cdot (\sqrt{3})^2 - (\sqrt{2})^2$$

$$= 64 \cdot 3 - 2 = 192 - 2 = \boxed{190}$$

Rationalize this denominator:

$$\frac{24 + \sqrt{6}}{\sqrt{12}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{24\sqrt{3} + \sqrt{18}}{6} \rightarrow \sqrt{9 \cdot 2}$$

$$\sqrt{36}$$

$$= \frac{24\sqrt{3} + 3\sqrt{2}}{6}$$

Reduce by GCF of 3

$$= \boxed{\frac{8\sqrt{3} + \sqrt{2}}{2}}$$

Rationalize the denominator.

$$\frac{24}{2-\sqrt{7}}$$

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

Conjugate of the Denominator.

$$\frac{24}{2-\sqrt{7}}\cdot\frac{2+\sqrt{7}}{2+\sqrt{7}} = \frac{24(2+\sqrt{7})}{-3}$$

a^2-b^2

$(2)^2-(\sqrt{7})^2$

$=4-7=-3$

$\frac{24}{-3}=-8$

$$=\boxed{-8(2+\sqrt{7}) \text{ or } -16-8\sqrt{7}}$$

Rationalize the denominator. Simplify if possible.

$$\frac{48}{5+\sqrt{3}}\cdot\frac{5-\sqrt{3}}{5-\sqrt{3}} = \frac{48(5-\sqrt{3})}{22}$$

reduce by GCF of 2

a^2-b^2

$(5)^2-(\sqrt{3})^2$

$=25-3$

$=22$

$$=\boxed{\frac{24(5-\sqrt{3})}{11} \text{ or } \frac{120-24\sqrt{3}}{11}}$$

Rationalize the denominator. Simplify if possible.

$$\frac{5+\sqrt{3}}{\sqrt{6}-2}\cdot\frac{\sqrt{6}+2}{\sqrt{6}+2}$$

	5	$+\sqrt{3}$
$\sqrt{6}$	$5\sqrt{6}$	$\sqrt{18}=3\sqrt{2}$
$+2$	$+10$	$2\sqrt{3}$

a^2-b^2

$(\sqrt{6})^2-(2)^2$

$=6-4$

$=2$

$$\boxed{\frac{5\sqrt{6}+3\sqrt{2}+10+2\sqrt{3}}{2}}$$

there is no GCF between the numerator and denominator to reduce the fraction by.

Rationalize the denominator. Simplify if possible.

$$\frac{11+\sqrt{5}}{3-4\sqrt{5}}\cdot\frac{3+4\sqrt{5}}{3+4\sqrt{5}}$$

	11	$+\sqrt{5}$
3	33	$3\sqrt{5}$
$+4\sqrt{5}$	$44\sqrt{5}$	$4\cdot5=20$

a^2-b^2

$(3)^2-(4\sqrt{5})^2$

$=9-16\cdot5$

$=9-80=-71$

$$\boxed{\frac{53+47\sqrt{5}}{-71}}$$

there is no GCF between the numerator and denominator to reduce the fraction by.

Rationalize the denominator. Simplify if possible.

$$\frac{\sqrt[3]{5}+4}{\sqrt[3]{5}} \cdot \frac{\sqrt[3]{5^2}}{\sqrt[3]{5^2}} = \frac{\sqrt[3]{5^3}+4\sqrt[3]{5^2}}{5}$$

$$\sqrt[3]{5^3} = 5$$

$$= \boxed{\frac{5+4\sqrt[3]{5^2}}{5}}$$

You can now finish Hwk #37

Sec 7-3

Due Monday

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Problems 23-25, 40, 42, 44