

Rationalize the denominator.

$$\frac{\sqrt{6}}{(7 + \sqrt{10})} \cdot \frac{(7 - \sqrt{10})}{(7 - \sqrt{10})} = \frac{7\sqrt{6} - \sqrt{60}}{39}$$

$$= \frac{7\sqrt{6} - \sqrt{4 \cdot 15}}{39}$$

$$= \frac{7\sqrt{6} - 2\sqrt{15}}{39}$$

$$\begin{aligned} &= a^2 - b^2 \\ &= 49 - 10 \\ &= 39 \end{aligned}$$

Rationalize the denominator.

$$\frac{8}{(-3 - \sqrt{11})} \cdot \frac{(-3 + \sqrt{11})}{(-3 + \sqrt{11})} = \frac{8(-3 + \sqrt{11})}{-2}$$

$$= a^2 - b^2$$

$$= 9 - 11$$

$$= -2$$

$$= -4(-3 + \sqrt{11})$$

$$\text{or}$$

$$12 - 4\sqrt{11}$$

Rationalize the denominator.

$$\frac{(\sqrt{7} + \sqrt{3})}{(4\sqrt{2} - 1)} \cdot \frac{(4\sqrt{2} + 1)}{(4\sqrt{2} + 1)} = \frac{4\sqrt{14} + 4\sqrt{6} + \sqrt{7} + \sqrt{3}}{31}$$

$$\begin{aligned} &= a^2 - b^2 \\ &= (4\sqrt{2})^2 - (1)^2 \\ &= 16 \cdot 2 - 1 \\ &= 31 \end{aligned}$$

$4\sqrt{2}$	$4\sqrt{14}$	$4\sqrt{6}$
$+1$	$+\sqrt{7}$	$+\sqrt{3}$

Rationalize the denominator.

$$\frac{(\sqrt{10} - 3)}{(\sqrt{5} - \sqrt{2})} \cdot \frac{(\sqrt{5} + \sqrt{2})}{(\sqrt{5} + \sqrt{2})} = \frac{2\sqrt{2} - \sqrt{5}}{3}$$

$$\begin{aligned} &= a^2 - b^2 \\ &= 5 - 2 \\ &= 3 \end{aligned}$$

$\sqrt{10}$	-3
$\sqrt{50} = 5\sqrt{2}$	$-3\sqrt{5}$
$+\sqrt{2}$	$-3\sqrt{2}$

Find the reciprocal of this rational expression.
Rationalize and simplify.

$$\frac{1 + \sqrt{5}}{2} \cdot \frac{2}{1 + \sqrt{5}} \cdot \frac{1 - \sqrt{5}}{1 - \sqrt{5}}$$

$$= \frac{2 - 2\sqrt{5}}{-4} = \boxed{\frac{1 - \sqrt{5}}{2} \text{ or } \frac{-1 + \sqrt{5}}{2}}$$

You can now finish Hwk #7

Sec 7-3

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Problems: 21, 22, 24, 25, 34, 40, 42, 44

Skills that you already have that will
be used later in this chapter.

Solve for y

$$x = \frac{\sqrt[3]{2y-7}}{8} + 6$$

$$y = \frac{[8(x-6)]^3 + 7}{2}$$

Solve

$$(x-6)^2 = x-4$$

$$(x-6)(x-6) = x-4$$

$$x^2 - 12x + 36 = x - 4$$

$$-x + 4 \quad -x + 4$$

$$x^2 - 13x + 40 = 0$$

$$(x-8)(x-5) = 0$$

Factor:

	+40
-8	-5
-13	

$$x=8, x=5$$

Find zeros
of each factor

Solve.

$$2x^{\frac{2}{3}} + 13 = 31$$

-13 -13

$$\frac{2x^{\frac{2}{3}}}{2} = \frac{18}{2}$$

$$x^{\frac{2}{3}} = 9$$

$$\sqrt[3]{x^2} = 9$$

$$(\sqrt[3]{x^2})^3 = (9)^3$$

$$\sqrt{x^2} = \sqrt{729}$$

$$x = \pm 27$$