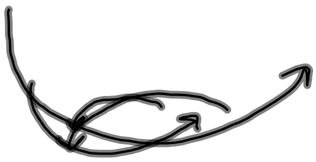
$x^2 - 3x + 7 \quad r\ -26x+51$

**Degree 2** $\quad x^2 - 7 \;\big)\; x^4 - 3x^3 + 0x^2 - 5x + 2$



$-(x^4 \quad -7x^2)$

$-3x^3 + 7x^2 - 5x + 2$

$-(-3x^3 \quad +21x)$

$7x^2 - 26x + 2$

$-(7x^2 \quad -49)$

$-26x + 51$ **Degree 1** $< 2$

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

101

$x^2 - 3x + 7 \quad r\ -26x+51$

$x^2 - 7 \;\big)\; x^4 - 3x^3 + 0x^2 - 5x + 2$

$-x^4 \quad +7x^2$

$-3x^3 + 7x^2 - 5x + 2$

$+3x^3 \quad -21x$

$7x^2 - 26x + 2$

$-7x^2 \quad +49$

$-26x + 51$

§7.4 #s 47-76

$x(y+z)$
$= xy + xz$

$\sqrt{7}\,(\sqrt{5}+\sqrt{3})$

$= \sqrt{7}\sqrt{5} + \sqrt{7}\sqrt{3}$

$= \sqrt{35} + \sqrt{21}$

50 $(3x-\sqrt{2})^2 = (3x)^2 - 2(3x)(\sqrt{2}) + (\sqrt{2})^2$

$(a-b)^2 = a^2 - 2ab + b^2$ ✓

$(a+b)^2 = a^2 + 2ab + b^2$

$a^2 - b^2 = (a-b)(a+b)$

$9x^2 - 6\sqrt{2}\,x + 2$

Apr 20-11:37 AM

69 $(\sqrt[3]{4}+2)(\sqrt[3]{2}-1)$

$\sqrt[3]{4}\sqrt[3]{2}-\sqrt[3]{4}+2\sqrt[3]{2}-2$

$\sqrt[3]{8}-\sqrt[3]{4}+2\sqrt[3]{2}-2$

$=2-\sqrt[3]{4}+2\sqrt[3]{2}-2$

$=-\sqrt[3]{4}+2\sqrt[3]{2}$

$2^3 \left\{ \begin{array}{l} 2|8 \\ 2|4 \\ 2 \end{array} \right.$

$\sqrt[3]{8}=\sqrt[3]{2^3}$

$(2^3)^{\frac{1}{3}}=2^{\frac{3}{3}}=2$

$(a+b)^2=a^2+2ab+b^2$

$(\sqrt{x-1}+5)^2=(\sqrt{x-1})^2+2(\sqrt{x-1})(5)+5^2$

$=x-1+10\sqrt{x-1}+25$

$=x+10\sqrt{x-1}+24$

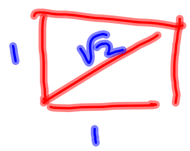
$(\sqrt{x-1})^2=x-1$

$\sqrt{(x-1)^2}=|x-1|$

## §7.5 Rationalizing denominators & numerators.

In §7.4, $\frac{2}{\sqrt{2}}$ is OK.

But no longer.




$$\frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

The denominator has been rational-ized.

$$\frac{2}{1+\sqrt{3}} = \left(\frac{2}{1+\sqrt{3}}\right)\left(\frac{1-\sqrt{3}}{1-\sqrt{3}}\right) = \frac{2-2\sqrt{3}}{-2}$$

$$= \frac{2(1-1\sqrt{3})}{-2}$$

$$= \frac{1-1\sqrt{3}}{-1}$$

$$\boxed{= -1+\sqrt{3}}$$

$$(a-b)(a+b) = a^2 - b^2$$

$$(1-\sqrt{3})(1+\sqrt{3}) = 1^2 - \sqrt{3}^2 = 1-3 = -2$$

20 $\sqrt{\frac{13a}{2b}} = \frac{\sqrt{13a}}{\sqrt{2b}} \cdot \frac{\sqrt{2b}}{\sqrt{2b}}$

$= \frac{\sqrt{26ab}}{2b}$

$32 = 2^5$

$\sqrt[5]{\frac{32}{m^{16}n^{13}}}$

$16 = 15 + 1$

$13 = 10 + 3$

$= \sqrt[5]{\frac{2^5}{m^{15}m^1 n^{10} n^3}} = \frac{\sqrt[5]{2^5}}{\sqrt[5]{m^{15}m^1 n^{10} n^3}}$

$= \frac{2}{m^3 n^2} \sqrt[5]{\frac{1}{m n^3}}$

7.5 #s 1-34 are all done w/ these skills.

$= \frac{2}{m^3 n^2} \cdot \frac{1}{\sqrt[5]{mn^3}} \cdot \frac{\sqrt[5]{m^4 \cdot n^2}}{\sqrt[5]{m^4 \cdot n^2}}$

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

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

$\sqrt[5]{mn^3} \sqrt[5]{m^4 n^2} = \sqrt[5]{mn^3 m^4 n^2}$

$= \sqrt[5]{m^5 n^5}$

#s 35-48

$$\frac{3}{\sqrt{7}-4} = \frac{3}{\sqrt{7}-4} \cdot \frac{\sqrt{7}+4}{\sqrt{7}+4} = \frac{3\sqrt{7}+12}{7-16}$$

$$=$$

Quiz on Tuesday