80) $\left(\frac{a^{2/3}}{b^{1/2}}\right)^2 \left(\frac{b^{3/2}}{a^{1/2}}\right)$

$= \left(\frac{a^{4/3}}{b}\right)\left(\frac{b^{3/2}}{a^{1/2}}\right) = a^{4/3-\frac{1}{2}} b^{3/2-1}$

$= \frac{1}{a^{\frac{8}{6}-\frac{3}{6}} b^{1/2}}$

$= \frac{1}{a^{\frac{5}{6}} b^{1/2}}$

Laws of Exponents

1) $x^a \cdot x^b = x^{a+b}$

2) $\frac{x^a}{x^b} = x^{a-b}$

3) $(x^a)^b = x^{ab}$

83) $5^{2\log_3 5}$

$= 5^{\log_5 5^2}$

$= 5^2 = 25$

$3^x = y$

$= \log_3 y = x$

(00) $(2)(4\pi)\left(\frac{2x}{4\pi}+\frac{1-x}{2}\right)=0\,(4\pi)$ (for x)

$2(2x)+4\pi(1-x)=0$

$4x+4\pi-4\pi x=0$

$4x-4\pi x=-4\pi$

$\frac{x(4-4\pi)}{4-4\pi}=\frac{-4\pi}{4-4\pi}$

$\Rightarrow \boxed{x=\frac{-\pi}{1-\pi}}$

101) $4x^2+12x+3=0$

$$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}=\frac{-12\pm\sqrt{144-4(4)(3)}}{8}$$

$4\sqrt{6}$

$\sqrt{96}$

$$=\frac{-12\pm\sqrt{144-48}}{8}=\boxed{\frac{-12\pm\sqrt{96}}{8}}$$

78) $\frac{ab-a}{b^2-b} = \frac{a(b-1)}{b(b-1)} = \boxed{\frac{a}{b}} = a\frac{1}{b}$

ca^pb^q c, p, q are constants.

$\boxed{a^1 b^{-1}}$

79) $\frac{(2a^2)^3}{b} = (2a^2)^3 b^{-1} = \boxed{8a^6 b^{-1}}$

76) $\sqrt{9ab^3} = 3b\sqrt{ab}$

b^{2b^1}

$= 3b^1(ab)^{1/2} = 3b^1 a^{1/2} b^{1/2}$

$= \boxed{3a^{1/2} b^{3/2}}$

77) $\frac{a\left(\frac{2}{b}\right)}{3} \cdot \frac{a}{1} = \frac{a^2\left(\frac{2}{b}\right)}{3} = \frac{\frac{2a^2}{b}}{3} = \boxed{\frac{2a^2}{3b}}$

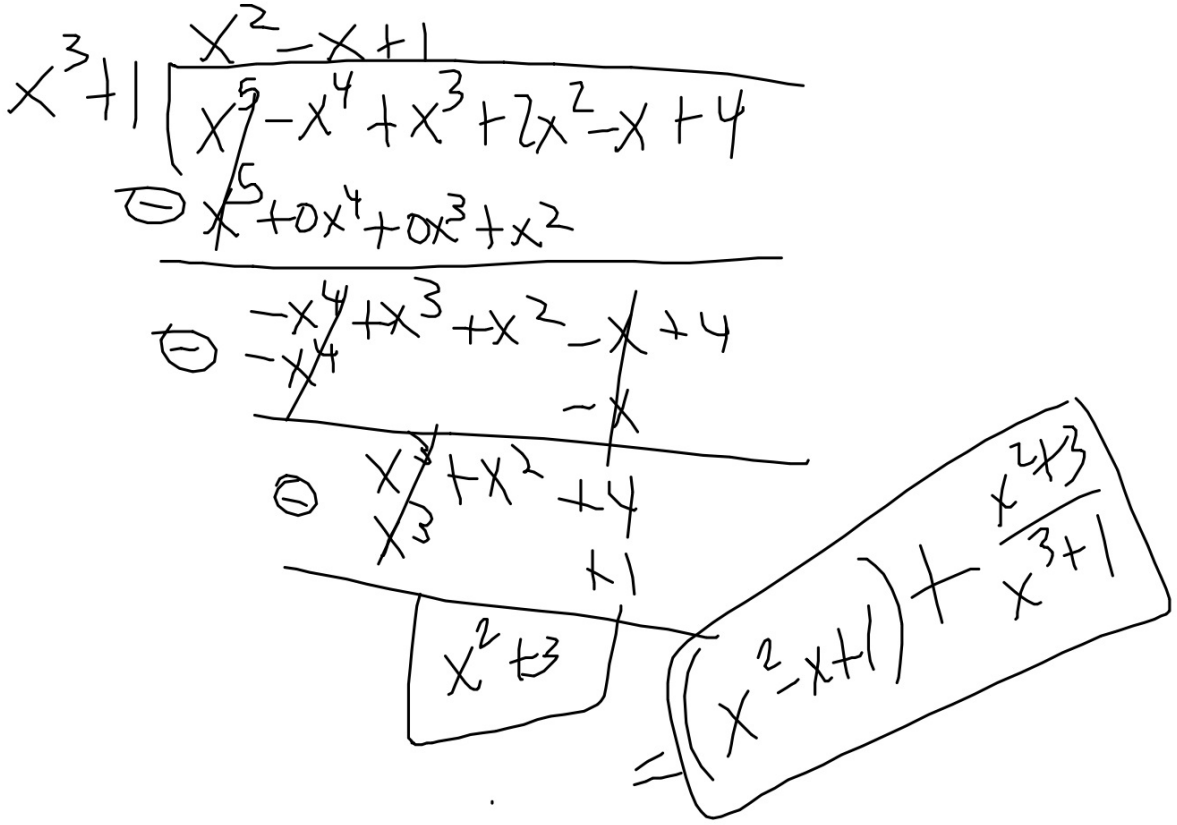
$\frac{\frac{2a}{b}}{\frac{3}{a}} = \frac{2a}{b} \cdot \frac{a}{3}$

$= \boxed{\frac{2}{3} \cdot a^2 b^{-1}}$

79) $\dfrac{a^{-1}}{b^{-1}\sqrt{a}} = a^{-1}b^{1}a^{-1/2} = \boxed{a^{-3/2}b^{1}}$

$\sqrt{a} = a^{1/2}$

105)


x^3+1
x^2-x+1
$x^5-x^4+x^3+2x^2-x+4$
$\ominus\ x^5+0x^4+0x^3+x^2$
$-x^4+x^3+x^2-x+4$
$\ominus\ -x^4$
$-x$
$\ominus\ x^3+x^2+4$
x^3
$+1$
x^2+3
$=\left(x^2-x+1\right)+\frac{x^2+3}{x^3+1}$

104)

-2	1	-4	1	0	-7	1
(+)	↓	-2	12	-26	52	-90
	1	-6	13	-26	45	-89

$$\left(x^4-6x^3+13x^2-26x+45\right)+\frac{-89}{x+2}$$