Summer Packet AASL yr 2

I. Solving rational Equations

(a) $\frac{x^2-1}{x} + \frac{x}{x-1} = 0$

(b) $\frac{x+1}{x-1} - \frac{2}{x} = 0$

(c) $\frac{1}{x+2} - \frac{1}{x-3} = 20$

(d) $\frac{x^2}{3x-1} + \frac{1}{2x} = 0$

e) $\frac{(1-x)}{x-1} + \frac{3x-1}{x+1} = -1$

(f) $\frac{x^2}{x+1} + \frac{x}{x-1} = \frac{1}{x^2-1}$

II. Exponents

Simplify

(a) $\frac{x^3}{x^6} =$

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

(c) $(2x)^2 \cdot \left(\frac{3}{x}\right)^3$

(d) $\frac{x\sqrt{x} - x}{x} =$

(e) $\frac{1-x}{x-1} =$

*(f) $x \cdot x^3 \cdot x^5 \cdot x^7 \cdot \ldots \cdot x^{31} =$

III. Evaluate the expression for given x.

(a) $f(x) = \sqrt{x^2+1} - x$, $f(-1) =$

(b) $g(x) = 5 - 5\sqrt{\frac{x}{5}} + x(x-5)$, $f(5) =$

(c) $h(x) = \dfrac{\sqrt[3]{x^3-1} + \sqrt{x^2-1}}{x-1}$, $f(5/4) =$

(d) $k(x) = x^2\cos x - (1-\sin^2 x)$, $f(\pi/2) =$

(e) $\dfrac{1-\frac{1}{1-x}}{x} = f(x)$, $f(-1) =$

(f) $x^2\tan x + 3x\tan x + 2\tan x$, $f(\pi/3) =$

$f(-2) =$

(g) $\dfrac{x^3+5x}{x^2+1} = g(x)$, $g(-1) =$