Ch 3 Rev. WS

1) $b^{-3/4}$

$= \frac{1}{b^{3/4}} = \frac{1}{\sqrt[4]{b^3}} = \sqrt[4]{\frac{1}{b^3}}$

$= \frac{1}{(b^3)^{1/4}} = (b^{1/4})^{-3}$

2) $(x^2 y^{3/4})^8$

$= x^{2(8)} y^{\frac{3}{4}(8)}$

$= x^{16} y^6$

3) $(x^3 y^{-4})^{-2}$

$x^{-6} y^8$

$\frac{1}{x^6} \frac{y^8}{1} = \frac{y^8}{x^6}$

4) $\frac{x^3 (x^2)^5}{x^3 x^{10}}$

x^{13}

5) $f(x) = 3 - x^2$

A) $f(5) = 3 - 5^2$

$= 3 - 25$

$f(5) = -22$

B) $f(3a) = 3 - (3a)^2$

$f(3a) = 3 - 9a^2$

6) $f(x) = x^2 + 5x + 6$

$f(0) = ?$

$0 = x^2 + 5x + 6$ ⊟X

$0 = (x+3)(x+2)$ 2.1.P.

$x+3=0 \quad x+2=0$

$-3 \quad -3 \quad -2 \quad -2$

$x = -3$ or -2

7) $f(x) = 3(x-5)^2$

$\frac{27}{3} = \frac{3(x-5)^2}{3}$

$9 = (x-5)^2$

$\sqrt{9} = \sqrt{(x-5)^2}$

$\pm 3 = x - 5$

$+5 \quad +5$

$x = 3+5$ or $-3+5$

$x = 8$ or 2

8) $\frac{x^2}{3} + \frac{x}{2} = \frac{1}{3}$ LCD $= 6$

$6\left(\frac{x^2}{3} + \frac{x}{2} = \frac{1}{3}\right)$

$\frac{6}{1}\left(\frac{x^2}{3}\right) + \frac{6}{1}\left(\frac{x}{2}\right) = \frac{6}{1}\left(\frac{1}{3}\right)$

$2x^2 + 3x = 2$

$2x^2 + 3x - 2 = 0$ ⊟X

$(2x-1)(x+2) = 0$

$2x - 1 = 0 \quad x + 2 = 0$

$x = \frac{1}{2}$ or -2

9) $\frac{x-3}{x} + \frac{2}{x-1} = \frac{5-x}{x}$ LCD $= x(x-1)$

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

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

$x^2 - 4x + 3 + 2x = -x^2 + 6x - 5$

$2x^2 - 8x + 8 = 0$

$2(x^2 - 4x + 4) = 0$

$2(x-2)(x-2) = 0$

$x - 2 = 0$

$x = 2$

10) $\frac{2x}{x-1} + \frac{3}{x+5}$

$\frac{x+5}{x+5}\left(\frac{2x}{x-1}\right) + \frac{3}{x+5}\left(\frac{x-1}{x-1}\right)$

$\frac{2x^2+10x}{(x+5)(x-1)} + \frac{3x-3}{(x+5)(x-1)}$

$\frac{2x^2+13x-3}{(x+5)(x-1)}$

11) $\frac{2}{x+4} - \frac{4x-x^2}{x^2-16}$

$\frac{2}{x+4} - \frac{x(4-x)}{(x-4)(x+4)}$

$\frac{2}{x+4} - \frac{x(-1)(x-4)}{(x-4)(x+4)}$

$\frac{2}{x+4} - \frac{-x}{x+4}$

$\frac{x+2}{x+4}$

12) $\frac{5x^2+34x-7}{10x} \cdot \frac{5x}{x^2+4x-21}$

$\frac{(5x-1)(x+7)}{10x} \cdot \frac{5x}{(x+7)(x-3)}$

$\frac{5x-1}{x-3}$

13) $\frac{2x^2+x-10}{x^2+2x-8} \div \frac{(2x+5)(2x+5)}{x+4}$

$\frac{(x-2)(2x+5)}{(x+4)(x-2)} \cdot \frac{(x+4)}{(2x+5)(2x+5)}$

$\frac{1}{2x+5}$

14)

n	0	1	2	3
f(n)	2	8	3y+5	

$+6 \quad +6$

A) $14 = 3y + 5$

$-5 \quad -5$

$\frac{9}{3} = \frac{3y}{3}$ $\quad y = 3$

15) $(1, 16), (4, \frac{1}{4})$ $y = ab^x$

1) $\frac{1}{4} = ab$

2) $16 = ab^4$

$.015625 = b^3$

$(.015625)^{1/3} = \sqrt[3]{b^3}$

$b = .25$

1) $.25 = \frac{a(.25)^4}{(.25)^4 (.25)^4}$

$a = 64$

$y = 64(.25)^x$

16) $y = 0$ is the Asymptote

17) A) $y = x^2 - 8x + 14$

$y = (x-4)^2 - 16 + 14$

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

B) $y = x^2 + 3x - 11$

$y = (x + \frac{3}{2})^2 - \frac{9}{4} - \frac{4}{1}(\frac{11}{4})$

$= (x + \frac{3}{2})^2 - \frac{9}{4} - \frac{44}{4}$

$y = (x + \frac{3}{2})^2 - \frac{53}{4}$

18) $y = -2(x-3)^2 + 4$

$a = -2 \quad h = 3 \quad k = 4$

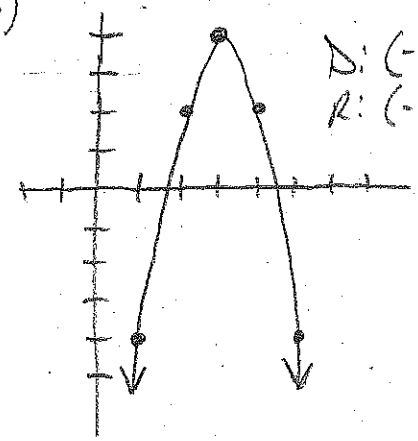
13)

n	0	1	2	3
f(n)	2	8	3y+5	

$\times 4 \quad \times 4$

$\frac{32}{3} = \frac{3y}{3} + \frac{5}{3}$

$\frac{27}{3} = \frac{3y}{3}$ $\quad y = 9$



D: $(-\infty, \infty)$

R: $(-\infty, 4)$