

# **Chapter 8: 8.1-8.4 Review**

**Pg. 546-548 #1-25 odd**

1)

$$y = kxz$$

$$2 = k(4)(6)$$

$$\frac{2}{24} = \frac{24k}{24}$$
$$\frac{1}{12} = k$$

$$y = \frac{kz}{12}$$

$$y = \frac{(3)(8)}{12}$$

$$= \frac{24}{12}$$

$$y = 2$$

$$3) \quad a = \frac{kb}{c^2}$$

$$4 \quad \left[ 3 = \frac{k(18)}{2^2} \right]$$

$$\frac{12}{18} = \frac{k(18)}{18}$$

$$\frac{2}{3} = k$$

$$a = \frac{2b}{3c^2}$$

$$a = \frac{2(20)}{3(6^2)}$$

$$a = \frac{40}{108} = \frac{10}{27} \approx .37$$

$$5) R(x) = \frac{2x-3}{x^2-8x+12} = \frac{2x-3}{(x-2)(x-6)}$$

vert. asympt:  $x=2$   
 $x=6$

horiz. asympt:  $y=0$

holes : None

domain All Real #'s except 2, 6

$$7) f(x) = \frac{x^2 - x - 42}{x^2 + 5x - 14} = \frac{(x-7)(x+6)}{(x+7)(x-2)}$$

vert. asympt:  $x = -7$   
 $x = 2$

horiz. asympt:  $y = 1$

holes : None

domain All Real #'s except  $-7, 2$

$$9) \quad s(x) = \frac{x^2 - 9}{3x + 5} = \frac{(x+3)(x-3)}{3x+5}$$

vert. asympt:  $x = -\frac{5}{3}$

horiz. asympt: None

holes : None

domain All Real #'s except  $-\frac{5}{3}$

$$11) h(x) = \frac{2x}{6x^4 - 18x^3} = \frac{2x}{6x^3(x-3)}$$

vert. asympt:  $x=3$

horiz. asympt:  $y=0$

holes :  $x=0$

domain All Real #'s except 3, 0

$$13) \frac{x^2 + 6x}{10} \cdot \frac{4}{x^2 - 36}$$

$$\frac{x(\cancel{x+6})}{\cancel{10}^5} \cdot \frac{\cancel{4}^2}{(x-6)(\cancel{x+6})}$$

$$\boxed{\frac{2x}{5x-30}}$$

$$15) \frac{4a+8}{5a-20} \div \frac{a^2+3a-10}{a^2-4a}$$

$$\frac{4(a+2)}{5(a-4)} \div \frac{(a+5)(a-2)}{a(a-4)}$$

$$\frac{4(a+2)}{5\cancel{(a-4)}} \cdot \frac{a\cancel{(a-4)}}{(a+5)(a-2)} = \boxed{\frac{4a^2+8a}{5a^2+15a-50}}$$

$$17) \frac{\frac{z}{z+1}}{\frac{z+2}{z}}$$

$$\frac{z}{z+1} \cdot \frac{z}{z+2}$$

$$= \frac{z^2}{z^2 + 3z + 2}$$

$$19) \frac{\frac{x+1}{x}}{\frac{(x+1)^2}{x+2}}$$

$$\frac{\cancel{x+1}}{x} \cdot \frac{x+2}{\cancel{(x+1)}(x+1)} = \boxed{\frac{x+2}{x^2+x}}$$

$$21) \frac{3y-5}{2y-6} + \frac{4y-2}{5y-15}$$

$$\frac{5}{5} \cdot \frac{3y-5}{2(y-3)} + \frac{2(2y-1)}{5(y-3)} \cdot \frac{2}{2}$$

$$\frac{15y-25}{10(y-3)} + \frac{8y-4}{10(y-3)} = \boxed{\frac{23y-29}{10y-30}}$$

$$23) \frac{2x-3}{x^2-3x} - \frac{3x+1}{x-3}$$

$$\frac{2x-3}{x(x-3)} - \frac{3x+1}{x-3} \cdot \frac{x}{x}$$

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

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

$$25) \frac{2}{\frac{x}{4}} + \frac{5}{\frac{x}{3}}$$

$$\frac{\frac{2}{1}}{\frac{x}{4}} + \frac{\frac{5}{1}}{\frac{x}{3}} = \frac{2}{1} \cdot \frac{4}{\cancel{x}} + \frac{5}{1} \cdot \frac{3}{x}$$

$$\frac{8}{x} + \frac{15}{x} = \boxed{\frac{23}{x}}$$