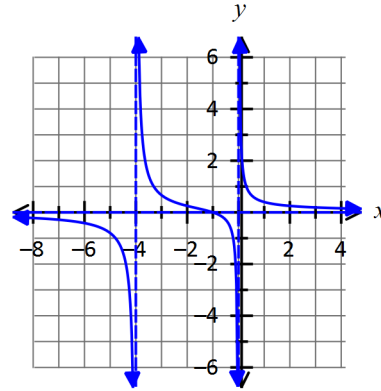
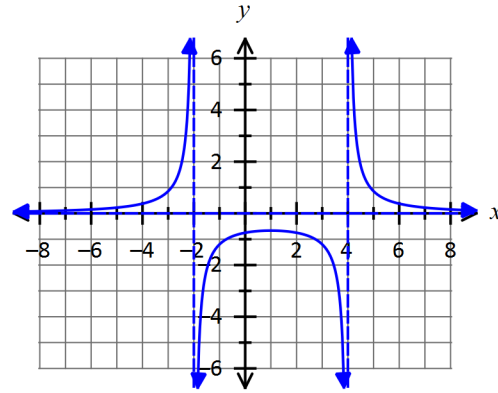


**Precalculus**  
**2.7 Homework Answers**

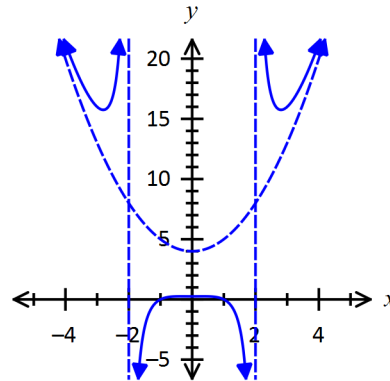
1. a)  $R(x) = \frac{x+1}{x(x+4)}$   
 b)  $\{x \mid x \neq 0, -4\}$   
 c) already in simplest form  
 d) x-int:  $(-1, 0)$ ; no y-int  
 e) no holes  
 f) vertical asymptotes:  $x = 0, x = -4$   
 g) horizontal asymptote:  $y = 0$



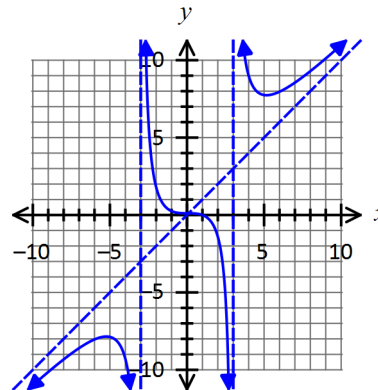
3. a)  $R(x) = \frac{6}{(x-4)(x+2)}$   
 b)  $\{x \mid x \neq 4, -2\}$   
 c) already in simplest form  
 d) no x-ints; y-int:  $(0, -3/4)$   
 e) no holes  
 f) vertical asymptotes:  $x = 4, x = -2$   
 g) horizontal asymptote:  $y = 0$



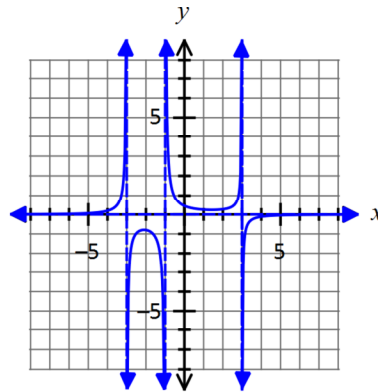
5. a)  $R(x) = \frac{(x^2+1)(x+1)(x-1)}{(x+2)(x-2)}$   
 b)  $\{x \mid x \neq -2, 2\}$   
 c) already in simplest form  
 d) x-ints:  $(-1, 0), (1, 0)$ ; y-int:  $(0, 1/4)$   
 e) no holes  
 f) vertical asymptotes:  $x = -2, x = 2$   
 g) end behavior: ends approach  $y = x^2 + 4$



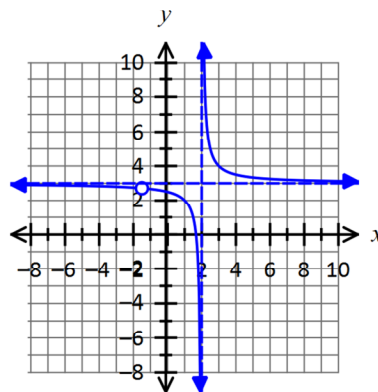
7. a)  $H(x) = \frac{(x-1)(x^2+x+1)}{(x+3)(x-3)}$   
 b)  $\{x \mid x \neq -3, 3\}$   
 c) already in simplest form  
 d) x-int:  $(1, 0)$ ; y-int:  $(0, 1/9)$   
 e) no holes  
 f) vertical asymptotes:  $x = -3, x = 3$   
 g) oblique asymptote:  $y = x$



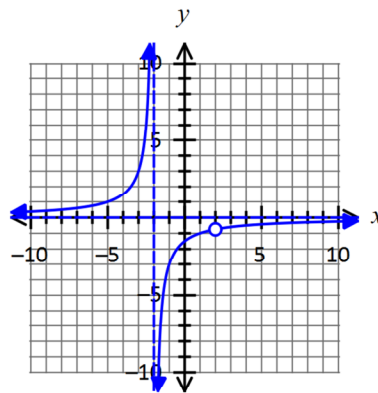
9. a)  $R(x) = \frac{-4}{(x+1)(x+3)(x-3)}$   
 b)  $\{x \mid x \neq -3, -1, 3\}$   
 c) already in simplest form  
 d) no  $x$ -ints;  $y$ -int:  $(0, 4/9)$   
 e) no holes  
 f) vertical asymptotes:  $x = -3, x = -1, x = 3$   
 g) horizontal asymptote:  $y = 0$



11. a)  $F(x) = \frac{(2x+3)(3x-5)}{(2x+3)(x-2)}$   
 b)  $\{x \mid x \neq -\frac{3}{2}, 2\}$   
 c)  $F(x) = \frac{(3x-5)}{(x-2)}$   
 d)  $x$ -int:  $(5/3, 0)$ ;  $y$ -int:  $(0, 5/2)$   
 e) hole:  $(-\frac{3}{2}, \frac{19}{7})$   
 f) vertical asymptote:  $x = 2$   
 g) horizontal asymptote:  $y = 3$



13. a)  $R(x) = \frac{-3(x-2)}{(x+2)(x-2)}$   
 b)  $\{x \mid x \neq -2, 2\}$   
 c)  $R(x) = \frac{-3}{x+2}$   
 d) no  $x$ -int;  $y$ -int:  $(0, -3/2)$   
 e) hole:  $(2, -3/4)$   
 f) vertical asymptote:  $x = -2$   
 g) horizontal asymptote:  $y = 0$



15.  $R(x) = \frac{3(x-1)^2(x+2)}{(x+3)(x-4)^2}$

17. a)  $A(x) = 2x^2 + \frac{40,000}{x}$   
 c) Minimum amount of cardboard:  $2784.95 \text{ in}^2$   
 d) Dimensions:  $21.54 \text{ in} \times 21.54 \text{ in} \times 21.54 \text{ in}$

