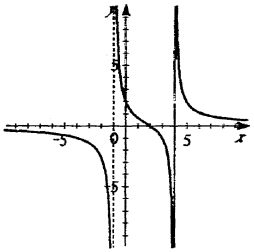
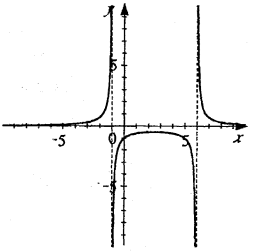
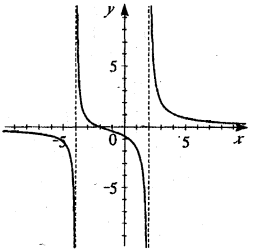
29. $s(x) = \dfrac{4x-8}{(x-4)(x+1)}$. When $x = 0$, $y = \frac{-8}{(-4)(1)} = 2$, so the y-intercept is 2. When $y = 0$, $4x + 8 = 0 \quad \Leftrightarrow \quad x = -2$, so the x-intercept is -2. The vertical asymptotes are $x = -1$ and $x = 4$, and because the degree of the numerator is less than the degree of the denominator, the horizontal asymptote is $y = 0$.



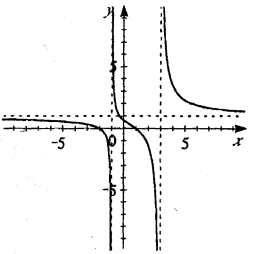
31. $s(x) = \dfrac{6}{x^2-5x-6}$. When $x = 0$, $y = \frac{6}{-6} = -1$, so the y-intercept is -1. Since the numerator is never zero, there is no x-intercept. The vertical asymptotes occur when $x^2 - 5x - 6 = (x+1)(x-3) \quad \Leftrightarrow$ $x = -1$ and $x = 3$, and because the degree of the numerator is less less than the degree of the denominator, the horizontal asymptote is $y = 0$.



33. $t(x) = \dfrac{3x+6}{x^2+2x-8}$. When $x = 0$, $y = \frac{6}{-8} = -\frac{3}{4}$, so the y-intercept y-intercept is $-\frac{3}{4}$. When $y = 0$, $3x + 6 = 0 \quad \Leftrightarrow \quad x = -2$, so the x-intercept is -2. The vertical asymptotes occur when $x^2 + 2x - 8 = (x-2)(x+4) = 0 \quad \Leftrightarrow \quad x = 2$ and $x = -4$. Since the degree of the numerator is less than the degree of the denominator, the horizontal asymptote is $y = 0$.



35. $r(x) = \dfrac{(x-1)(x+2)}{(x+1)(x-3)}$. When $x = 0$, $y = \frac{2}{3}$, so the y-intercept is $\frac{2}{3}$. When $y = 0$, $(x-1)(x+2) = 0 \quad \Rightarrow \quad x = -2, 1$, so, the x-intercepts are -2 and 1. The vertical asymptotes are $x = -1$ and $x = 3$, and because the degree of the numerator and denominator are the same the horizontal asymptote is $y = \frac{1}{1} = 1$.



37. $r(x) = \dfrac{x^2-2x+1}{x^2+2x+1} = \dfrac{(x-1)^2}{(x+1)^2} = \left(\dfrac{x-1}{x+1}\right)^2$. When $x = 0$, $y = 1$, so the y-intercept is 1. When $y = 0$, $x = 1$, so the x-intercept is 1. A vertical asymptote occurs at $x + 1 = 0 \quad \Leftrightarrow \quad x = -1$. Because the degree of the numerator and denominator are the same the horizontal asymptote is $y = \frac{1}{1} = 1$.