

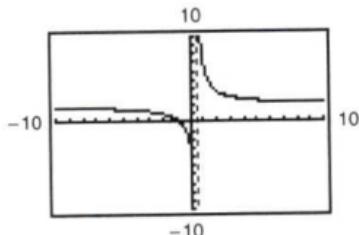
Section 3.5 (page 205)

1. f 2. c 3. d 4. a 5. b 6. e

7.

x	10^0	10^1	10^2	10^3
$f(x)$	7	2.2632	2.0251	2.0025

x	10^4	10^5	10^6
$f(x)$	2.0003	2.0000	2.0000

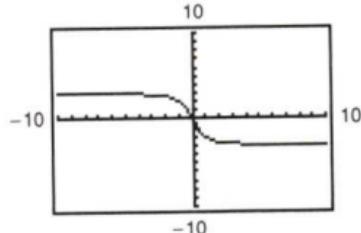


$$\lim_{x \rightarrow \infty} \frac{4x + 3}{2x - 1} = 2$$

9.

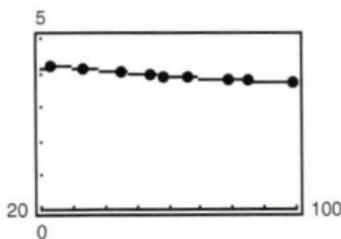
x	10^0	10^1	10^2	10^3
$f(x)$	-2	-2.9814	-2.9998	-3.0000

x	10^4	10^5	10^6
$f(x)$	-3.0000	-3.0000	-3.0000



$$\lim_{x \rightarrow \infty} \frac{-6x}{\sqrt{4x^2 + 5}} = -3$$

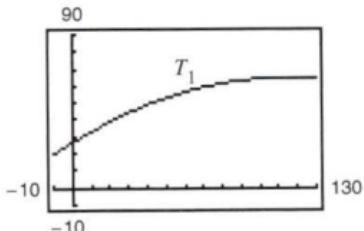
91. (a)



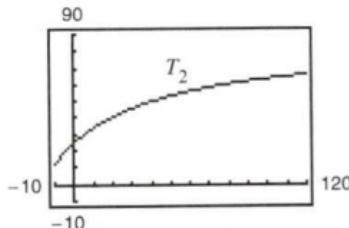
(b) Yes. $\lim_{t \rightarrow \infty} y = 3.351$

93. (a) $T_1 = -0.003t^2 + 0.68t + 26.6$

(b)



(c)



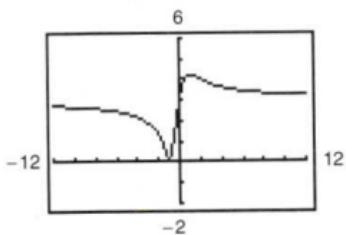
(d) $T_1(0) \approx 26.6^\circ$, $T_2(0) \approx 25.0^\circ$ (e) 86

(f) The limiting temperature is 86°.

No. T_1 has no horizontal asymptote.

95. (a) $d(m) = \frac{|3m + 3|}{\sqrt{m^2 + 1}}$

(b)



(c) $\lim_{m \rightarrow \infty} d(m) = 3$

$$\lim_{m \rightarrow -\infty} d(m) = 3$$

As m approaches $\pm\infty$, the distance approaches 3.

97. (a) $\lim_{x \rightarrow \infty} f(x) = 2$ (b) $x_1 = \sqrt{\frac{4 - 2\varepsilon}{\varepsilon}}, x_2 = -\sqrt{\frac{4 - 2\varepsilon}{\varepsilon}}$

(c) $\sqrt{\frac{4 - 2\varepsilon}{\varepsilon}}$ (d) $-\sqrt{\frac{4 - 2\varepsilon}{\varepsilon}}$

99. (a) Answers will vary. $M = \frac{5\sqrt{33}}{11}$

101–105. Proofs

(b) Answers will vary. $M = \frac{29\sqrt{177}}{59}$

107. False. Let $f(x) = \frac{2x}{\sqrt{x^2 + 2}}$. $f'(x) > 0$ for all real numbers.