6. RESPOSTAS DOS EXERCÍCIOS

Capítulo 2

2.1. a) $3^{19/12}$; b) $8\sqrt{2}$; c) $\frac{1}{4}$

2.2. a) x^5; b) $1 + a$; c) $\frac{-2}{b^2+1}$; d) $\frac{12}{5}$; e) 1; f) $\sqrt{x}$; g) $\frac{1}{8}$; h) $x - 1$

2.3. a) 7; b) 47

2.4. a) { 4 }; b) { 2 }; c) { –1 }; d) { 0, 4 }

Capítulo 3

3.1. a) $\frac{1}{6}$; b) $\frac{25}{2}$; c) $9\sqrt{3}$; d) $\frac{8}{3}$

3.2. a) $\frac{45}{\sqrt{a}.\sqrt[3]{b}}$; b) $\sqrt[5]{\frac{(a-b)^2 b^4}{(a+b)^2}}$;

3.3. $\frac{p+q}{7}$

3.4. m – n

3.5. $\frac{30}{31}$

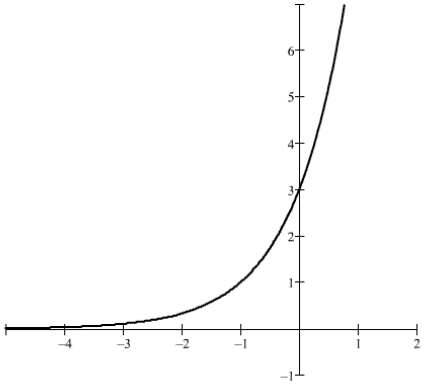
3.7 $r = \log_a q$

3.9. p = S (s – S) e P = s (2S – s)

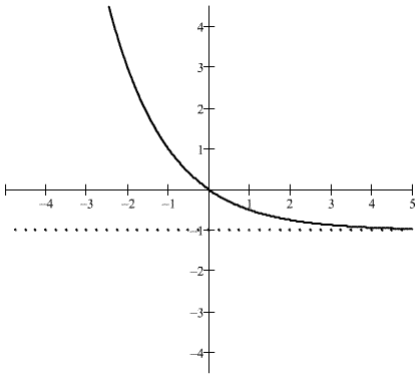
Capítulo 4

4.1

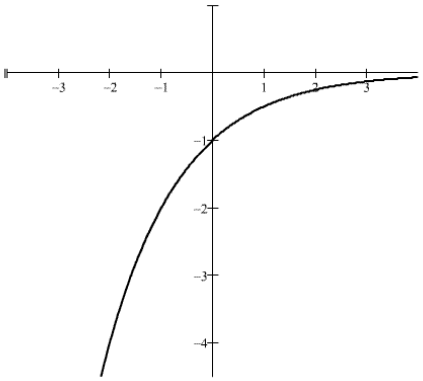
a)



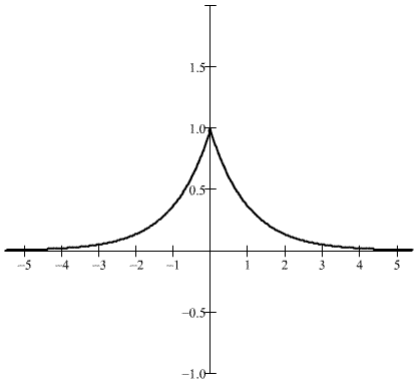
b)



c)



d)



4.3. a) $[-1,1]$; b) $(-2,3[- \{ 2 \}$; c) $]3, + \infty [$; d) $]-\infty,-\log_3 5[\cup]-1,+\infty[$

4.4. a) $f^{-1}(x) = 5^{x-2}$; $D(f^{-1}) = R$ e $Im(f^{-1}) = R_+^*$;

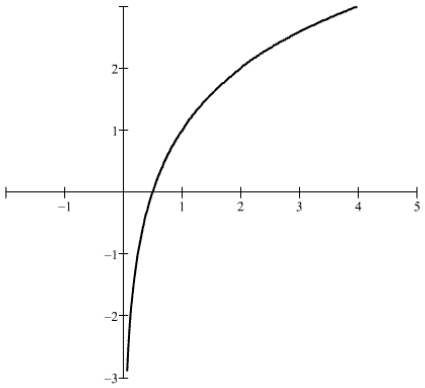
b) $f^{-1}(x) = \dfrac{\log_3 x - 3}{2}$; $D(f^{-1}) = R_+^*$ e $Im(f^{-1}) = R$;

c) $f^{-1}(x) = 10^{1/x}$; $D(f^{-1}) = R^*$; $Im(f^{-1}) = R_+^* - \{ 1 \}$;

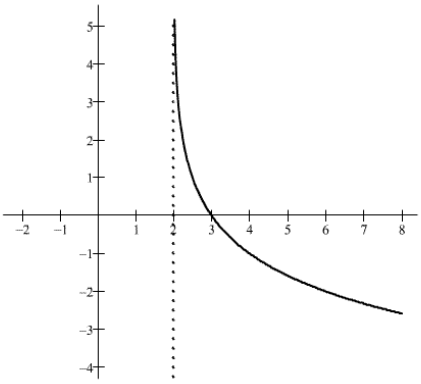
d) $f^{-1}(x) = \log_5\left(\dfrac{x+\sqrt{x^2+8}}{2}\right)$; $D(f^{-1}) = Im(f^{-1}) = R$

4.5.

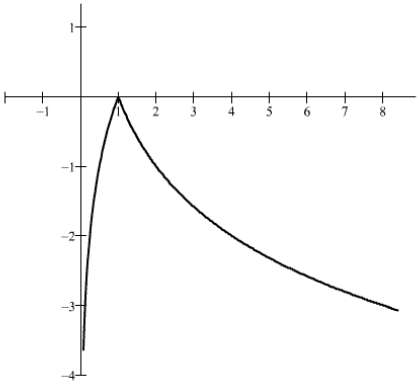
a)



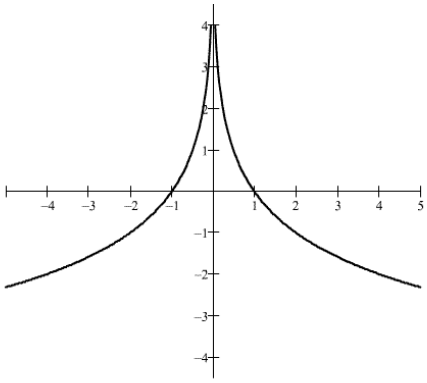
b)



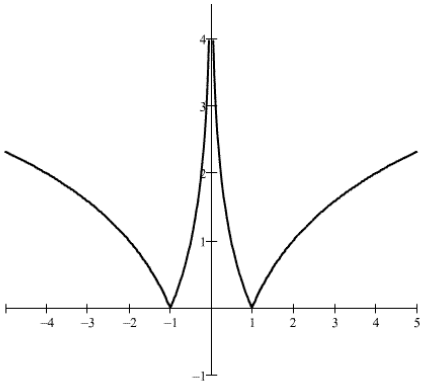
c)



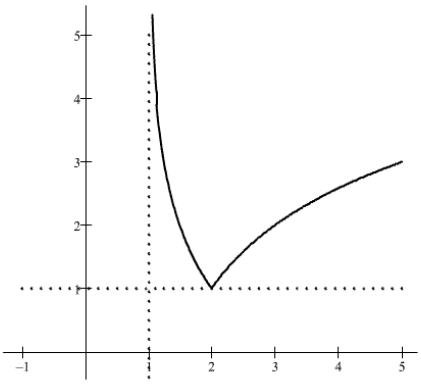
d)



e)



f)



Capítulo 5

5.1. a) { –4, 5 }; b) { 5 }; c) { 1 }; d) { 3 }; e) { 1 }; f) { 1, $\sqrt{2}$ };

g) $\left\{0,1,\frac{3}{2}\right\}$; h) { 0 }

5.2. a) { (3,4) }; b) $\left\{\left(3^{-1/3},3^{2/3}\right)\right\}$

5.3. a) $]\frac{4}{5},+\infty[$; b) $[-3,\frac{1}{2}]$; c) $[-\frac{9}{4},+\infty[$; d) $\varnothing$; e) $]-\infty,-1[\cup]1,+\infty[$

f) $[1,2] \cup [0,\frac{1}{3}]$; g)

$a>1 \Rightarrow S=]-3,3[$;) $< a < 1 \Rightarrow S=]-\infty,-3[\cup]3,+\infty[$

g) $]-\infty,-1[\cup]-\frac{2}{3},0[\cup]0,1[\cup]2,+\infty[$

5.4. a) { $\sqrt[3]{\frac{1}{4}}$ }; b) { 9 }; c) { 257 }

5.5. a) { 2 }; b) { 10, 10^3 }; c) { 10^{100} }; d) { a }; e) { $\log_{5/3}(13/6)$ };

f) { $\log_{72} 6$ }

5.6. a) { (8,2) }; b) { (90,10) }

5.7. a)]–5,0[∪]4,9[; b) $]-4,-\sqrt{13}[\cup[\sqrt{13},4]$; c) $]1,+\infty[$;

d) $]-\infty,-3[\cup]3,+\infty[$; e) $]1,\frac{5}{4}]\cup]2,33]$ f) $]0,1[\cup]9,+\infty[$