15. Exercícios

1) Resolva as equações:

a) $\text{sen } x = \text{sen}(\frac{\pi}{18})$

b) $\cos x = \frac{1}{3}$

c) $\text{tg}(3x) = \text{tg}(2x)$

d) $\text{sen}(3x) + \text{sen } x = 0$

e) $\text{sen } x + \cos x = 0$

f) $\text{sen}(4x) = 1$, para $0 \le x \le \pi$

g) $\cos(2x) = \frac{1}{2}$, para $0 \le x \le 2\pi$

2) Se $\text{tg } a = \frac{1}{2}$ e $a \in \left[0, \frac{\pi}{2}\right[$, então determine cos a.

3) Determine o número de soluções da equação $2\cos^2(x) = 3\,\text{sen}(x)$ que satisfazem a condição $0 \le x \le \pi$.

4) Determine o domínio da função f, definida por:

a) $f(x) = \sqrt{1-2\text{sen}(x)}$

b) $g(x) = \frac{1}{\sqrt{\text{tg}(x)}}$

RESPOSTAS

1) a) $\left\{x \in R; x = \frac{\pi}{18} + 2k\pi \text{ ou } x = \frac{17\pi}{18} + 2k\pi, k \in Z\right\}$

b) $\left\{x \in R; x = \arccos\left(\frac{1}{3}\right) + 2k\pi \text{ ou } x = -\arccos\left(\frac{1}{3}\right) + 2k\pi, k \in Z\right\}$

c) $\{x \in R; x = k\pi, k \in Z\}$ d) $\left\{x \in R; x = \frac{k\pi}{2}, k \in Z\right\}$

e) $\left\{x \in R; x = \frac{7\pi}{4} + k\pi \ , k \in Z\right\}$ f) $\left\{\frac{\pi}{8}, \frac{5\pi}{8}\right\}$ g) $\left\{\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}\right\}$

2) $\frac{2\sqrt{5}}{5}$ 3) 2

4) a) $\left\{x \in R; x = 2k\pi \le x \le \frac{\pi}{6} + 2k\pi \text{ ou } \frac{5\pi}{6} + 2k\pi \le x \le 2\pi + 2k\pi, k \in Z\right\}$

b) $\left\{x \in R; x = k\pi \le x \le \frac{\pi}{2} + k\pi \ , k \in Z\right\}$