

$$1. \frac{\pi}{6} \Rightarrow \frac{180}{n} \cdot \frac{\pi}{6} = 30^\circ$$

$$3. \frac{\pi}{10} \Rightarrow \frac{180}{n} \cdot \frac{\pi}{10} = 18^\circ$$

$$2. \frac{\pi}{4} \Rightarrow \frac{180}{n} \cdot \frac{\pi}{4} = 45^\circ$$

$$4. \frac{3\pi}{5} \Rightarrow \frac{180}{n} \cdot \frac{3\pi}{5} = 108^\circ$$

$$5. \frac{7\pi}{9} \Rightarrow \frac{180}{n} \cdot \frac{7\pi}{9} = 140^\circ$$

$$6. \frac{13\pi}{20} \Rightarrow \frac{180}{n} \cdot \frac{13\pi}{20} = 117^\circ$$

$$7. 2 \Rightarrow \frac{180}{n} \cdot 2\pi = 360^\circ$$

$$8. 1.5 \Rightarrow \frac{180}{n} \cdot 1.5\pi = 234^\circ$$

$$9. 70 \text{ rad} = \frac{x}{1} \Rightarrow 126 \text{ m}$$

$$10. \frac{0.025}{x} = 60 \Rightarrow 0.025 \Rightarrow 0.0004$$

$$11. x = \frac{3}{1} \Rightarrow 3^\circ$$

$$12. 20 = \frac{0.4}{n} \Rightarrow 0.02$$

$$13. 0) \frac{180x}{n}$$

$$14. 4R = R^2 \cdot 2 \Rightarrow \frac{4}{n}$$

$$15. x^2 = 5^2 + 5^2 \Rightarrow 5\sqrt{2}$$

$$16. x^2 = 8^2 + 12^2 \Rightarrow 4\sqrt{13}$$

$$17. 10^2 = 8^2 + x^2 \Rightarrow 6$$

$$18. 4^2 = x^2 + 2^2 \Rightarrow 2\sqrt{3}$$



$$19-1) \operatorname{Tg} = \frac{4}{3} = 1,3$$

$$2) \sin = \frac{4}{5}$$

$$3) \cos = \frac{3}{5}$$

$$20-1) \operatorname{Tg} = \frac{8}{7}$$

$$2) \sin = \frac{8}{\sqrt{113}} = \frac{8\sqrt{113}}{113}$$

$$3) \cos = \frac{7}{\sqrt{113}} = \frac{7\sqrt{113}}{113}$$

$$21-1) \operatorname{Tg} = \frac{12}{5}$$

$$2) \sin = \frac{12}{13}$$

$$3) \cos = \frac{5}{13}$$

$$22-1) \operatorname{Tg} = \frac{8}{15}$$

$$2) \sin = \frac{8}{17}$$

$$3) \cos = \frac{15}{17}$$

$$23-1) \operatorname{Tg} = \frac{7}{11}$$

$$2) \sin = \frac{7}{\sqrt{170}} = \frac{7\sqrt{170}}{170}$$

$$3) \cos = \frac{11}{\sqrt{170}} = \frac{11\sqrt{170}}{170}$$

$$24-1) \operatorname{Tg} = \frac{6}{2\sqrt{7}} = \frac{3\sqrt{7}}{\sqrt{7}} = \frac{3}{1}$$

$$2) \sin = \frac{6}{2\sqrt{7}} = \frac{3\sqrt{7}}{2\sqrt{7}} = \frac{3}{2}$$

$$3) \cos = \frac{\sqrt{7}}{2}$$

$$25-1) \operatorname{Tg} = \frac{\sqrt{57}}{8}$$

$$2) \sin = \frac{\sqrt{57}}{11}$$

$$3) \cos = \frac{8}{11}$$

$$26-1) \operatorname{Tg} = \frac{9}{2\sqrt{22}} = \frac{9\sqrt{22}}{2\sqrt{22}} = \frac{9\sqrt{22}}{22}$$

$$2) \sin = \frac{9}{13}$$

$$3) \cos = \frac{2\sqrt{22}}{13}$$



$$27. \sin \theta = \frac{3}{7}$$

$$\cos \theta = \frac{2\sqrt{10}}{7}$$

$$g_y = \frac{3}{2\sqrt{10}} \cdot \frac{2\sqrt{10}}{2\sqrt{10}} = \frac{6\sqrt{10}}{40}$$

$$28. \sin \theta = \frac{2}{3}$$

$$\cos \theta = \frac{\sqrt{5}}{3}$$

$$g_y = \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

$$29. \cos \theta = \frac{5}{11}$$

$$g_y = \frac{4\sqrt{6}}{5}$$

$$\sin \theta = \frac{4\sqrt{5}}{11}$$

$$30. \cos \theta = \frac{5}{8}$$

$$g_y \theta = \frac{\sqrt{39}}{5}$$

$$\sin \theta = \frac{\sqrt{39}}{8}$$

$$31. g_y \theta = \frac{5}{9}$$

$$\sin \theta = \frac{5}{\sqrt{106}} \cdot \frac{\sqrt{106}}{\sqrt{106}} = \frac{5\sqrt{106}}{106}$$

$$\cos \theta = \frac{9}{\sqrt{106}} \cdot \frac{\sqrt{106}}{\sqrt{106}} = \frac{9\sqrt{106}}{106}$$

$$32. g_y \theta = \frac{12}{13}$$

$$\sin \theta = \frac{12}{\sqrt{313}} \cdot \frac{\sqrt{313}}{\sqrt{313}} = \frac{12\sqrt{313}}{313}$$

$$\cos \theta = \frac{13}{\sqrt{313}} \cdot \frac{\sqrt{313}}{\sqrt{313}} = \frac{13\sqrt{313}}{313}$$

$$\frac{13\sqrt{313}}{313}$$

$$34. \cos 39^\circ = \frac{x}{23}$$

$$23 \cdot 0.78 = x$$

$$x = 18.01$$

$$33. \sin 34^\circ = \frac{15}{x}$$

$$0.55 \cdot x = 15$$

$$x = \frac{15}{0.55} = 27.27$$



$$35. \tan 57^\circ = \frac{32}{x}$$

$$x = \frac{32}{0,5}$$

$$x = 64$$

$$36. \tan 43^\circ = \frac{x}{14}$$

$$14 \cdot 0,68 = x$$

$$9,52 = x$$

$$37. \tan 35^\circ = \frac{y}{6}$$

$$y \cdot 0,57 = 6$$

$$y = \frac{6}{0,57}$$

$$y = 10,52$$

$$38. \tan 66^\circ = \frac{x}{50}$$

$$50 \cdot 0,4 = x$$

$$x = 20$$

$$39. \theta = \frac{\pi}{6}$$

$$2\pi - \frac{\pi}{6} = 360^\circ$$

$$-\frac{\pi}{6} = 180^\circ$$

$$2\pi \cdot x = -350 \cdot \frac{\pi}{6}$$

$$x = 30^\circ$$

$$40. \theta = \frac{5\pi}{6}$$

$$2\pi - \frac{5\pi}{6} = 360^\circ$$

$$-\frac{5\pi}{6} = x$$

$$2\pi x = 350 \cdot \frac{5\pi}{6}$$

$$x = 150^\circ$$

$$41. \theta = \frac{25\pi}{4}$$

$$2\pi - \frac{25\pi}{4} = 360^\circ$$

$$\frac{25\pi}{4} = x$$

$$2\pi x = 350 \cdot \frac{25\pi}{4}$$

$$x = 1125^\circ$$

$$42. \theta = \frac{16\pi}{3}$$

$$2\pi - \frac{16\pi}{3} = 360^\circ$$

$$-\frac{16\pi}{3} = x$$

$$2\pi x = 350 \cdot \frac{16\pi}{3}$$

$$x = 960^\circ$$



$$43-x = \sqrt{(-1)^2 + 2^2} = \sqrt{5}$$

$$\sin \theta = \frac{2}{\sqrt{5}}, \cos \theta = -\frac{1}{\sqrt{5}}, \operatorname{Tg} \theta = -2$$

$$44-x = \sqrt{4^2 + (-3)^2} = 5$$

$$\sin \theta = \frac{3}{5}, \cos \theta = -\frac{4}{5}$$

$$\operatorname{Tg} \theta = -\frac{3}{4}$$

$$45-x = \sqrt{(-1)^2 + (-1)^2} = \sqrt{2}$$

$$\sin \theta = \frac{1}{\sqrt{2}}, \cos \theta = -\frac{1}{\sqrt{2}}, \operatorname{Tg} \theta = 1$$

$$46-x = \sqrt{3^2 + (-5)^2} = \sqrt{34}$$

$$\sin \theta = -\frac{5}{\sqrt{34}}, \cos \theta = \frac{3}{\sqrt{34}}$$

$$\operatorname{Tg} \theta = -\frac{5}{3}$$

$$47-x = \sqrt{3^2 + 4^2} = 5$$

$$\sin \theta = \frac{4}{5}, \cos \theta = \frac{3}{5}, \operatorname{Tg} \theta = \frac{4}{3}$$

$$48-x = \sqrt{(-4)^2 + (-6)^2} = 2\sqrt{13}$$

$$\sin \theta = -\frac{3}{2\sqrt{13}}, \cos \theta = -\frac{2}{\sqrt{13}}$$

$$\operatorname{Tg} \theta = \frac{3}{2}$$

$$49-x = \sqrt{0^2 + 5^2} = 5$$

$$\sin \theta = 1, \cos \theta = 0, \operatorname{Tg} \theta = \frac{1}{0}$$

$$50-x = \sqrt{(-3)^2 + 0^2} = 3$$

$$\sin \theta = 0, \cos \theta = -1$$

$$\operatorname{Tg} \theta = 0$$

$$51-x = \sqrt{5^2 + (-2)^2} = \sqrt{29}$$

$$\sin \theta = -\frac{2}{\sqrt{29}}, \cos \theta = \frac{5}{\sqrt{29}}, \operatorname{Tg} \theta = -\frac{2}{5}$$

$$52-x = \sqrt{2^2 + (-2)^2} = 2\sqrt{2}$$

$$\sin \theta = -\frac{1}{\sqrt{2}}, \cos \theta = \frac{1}{\sqrt{2}}$$

$$\operatorname{Tg} \theta = -1$$



$$S3 - -450^\circ$$

$$\text{sen} - 450^\circ = -1$$

$$\text{cos} - 450^\circ = 0$$

$$\text{tg} - 450 = 0$$

$$S4 - -270^\circ$$

$$\text{sen} - 270^\circ = 1$$

$$\text{cos} - 270 = 0$$

$$\text{tg} - 270 = \{ \}$$

$$S5 - 7\pi$$

$$\text{sen} 7\pi = 0$$

$$\text{tg} 7\pi = 0$$

$$\text{cos} 7\pi = -1$$

$$S6 - 11\pi/2$$

$$\text{sen} 11\pi/2 = -1$$

$$2$$

$$\text{cos} 11\pi/2 = -1$$

$$2$$

$$\text{tg} 11\pi/2 = 0$$

$$2$$

$$S7 - \frac{-7\pi}{2}$$

$$\text{sen} - \frac{7\pi}{2} = 1$$

$$2$$

$$\text{cos} - \frac{7\pi}{2} = 1$$

$$2$$

$$\text{tg} - \frac{7\pi}{2} = 0$$

$$2$$

$$S8 - 4\pi$$

$$\text{sen} - 4\pi = 0 \quad \text{tg} - 4\pi = 0$$

$$\text{cos} - 4\pi = 1$$

$$S5 - \text{Verdadeiro}$$

$$62 - \text{sen } d = \sqrt{1 - \cos^2 x}$$

$$\text{sen } d = -\sqrt{1 - \frac{25}{169}} = -\frac{12}{13}$$

$$A //$$

$$S9 - \text{Encontre } \cos \theta, \text{ se } \text{sen } \theta = \frac{1}{4}$$

$$\text{e } \text{tg } \theta < 0$$

$$\cos \theta = -\sqrt{1 - \text{sen}^2 \theta} = -\frac{\sqrt{15}}{4}$$

$$64 - \text{mão sei fazer}$$

$$63 - y = 5 \cdot \text{tg } x$$

$$y = 0,5 \text{ tg } x$$



$$65. \sin\left(\frac{\pi}{3}\right) = \frac{\sqrt{3}}{2}$$

$$66. \cos\left(\frac{\pi}{6}\right) = 30^\circ = \frac{\sqrt{3}}{2}$$

$$67. \cos\left(\frac{\pi}{4}\right) = 45^\circ = \frac{\sqrt{2}}{2}$$

$$68. \cos 120^\circ = -\frac{1}{2}$$

$$69. \sec \frac{\pi}{3} = 60^\circ = 2$$

$$70. \sin\left(\frac{13\pi}{6}\right) = 39^\circ = \frac{1}{2}$$

$$71. \tan \frac{15\pi}{4} = 675^\circ = -1$$

$$72. \cos \frac{23\pi}{6} = 69^\circ = \frac{\sqrt{3}}{2}$$

$$73. \sin \frac{11\pi}{3} = 56^\circ = -\frac{\sqrt{3}}{2}$$

$$74. \tan^{-1}\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3}$$

$$75. \tan^{-1} 0 = 0$$

$$76. \cos^{-1}\left(\frac{1}{2}\right) = \frac{\pi}{3}$$

$$77. \tan^{-1}(-1) = -\frac{\pi}{4}$$

$$78. \sin^{-1}\left(-\frac{1}{\sqrt{2}}\right) = -\frac{\pi}{4}$$

$$79. \cos^{-1}(0) = \frac{\pi}{2}$$

$$80. \text{de } \sin 0 = 0,45 \text{, deter-} \\ \text{mine } \cos\left(\frac{\pi}{2} - 0\right)$$

$$81. \text{de } \sin\left(0 - \frac{\pi}{2}\right) = 0,73$$

~~$$\sin\left(\frac{\pi}{2} - 0\right) = 0,45$$~~

$$\text{determine } \cos(0)$$

$$0 = 25^\circ$$

$$\cos\left(\frac{\pi}{2} - 25^\circ\right)$$

$$\begin{aligned} &\cos(90^\circ - 25^\circ) \\ &\cos 65^\circ \\ &0,45 \end{aligned}$$

$$0 = 135^\circ \quad \cos(-135^\circ) = 0,73$$



$$82. \operatorname{Tg} x \cdot \cos x$$

$$\operatorname{Tg} x = \frac{\sin x}{\cos x}$$

$$\operatorname{Tg} x \cdot \cos x = \sin x$$

$$83. \sin y \cdot \sin \left( \frac{\pi}{2} - y \right)$$

$$\frac{1}{\cos(y)} \cdot \sin \left( \frac{\pi}{2} - y \right)$$

$$\frac{1}{\cos(y)} \cdot \cos(y)$$

$$84. \frac{1 + \operatorname{Tg}^2 x}{\sec^2 x}$$

$$85. \frac{\cos x - \cos^2 x}{\cos x \sin^2 x}$$

$$86. \sin x \cdot \csc(-x)$$

$$= \sin(x) \cdot \csc(x)$$

$$= \sin(x) \cdot \frac{1}{\sin(x)}$$

$$= 1$$

$$87. \cot(-x) \cdot \cot \left( \frac{\pi}{2} - x \right)$$

$$= \cot(x) \cdot \operatorname{Tg}(x)$$

$$= \frac{\cos(x)}{\sin(x)} \cdot \frac{\sin(x)}{\cos(x)}$$

$$= 1$$

$$88. \sin^2(-x) + \cos^2(-x)$$

$$= \sin^2(x) + \cos^2(x)$$

$$= 1$$

$$89. \sin 15^\circ = \frac{\sqrt{6} - \sqrt{2}}{4}$$

$$90. \sin 75^\circ = \frac{\sqrt{6} + \sqrt{2}}{4}$$

$$91. \cos \frac{\pi}{12} = \frac{\sqrt{2} + \sqrt{6}}{4}$$

$$92. \operatorname{Tg} \frac{5\pi}{12} = 2 + \sqrt{3}$$

$$93. \cos \frac{7\pi}{12} = \frac{\sqrt{2} - \sqrt{6}}{4}$$

$$94. \sin 42^\circ \cdot \cos 17^\circ - \cos 42^\circ \cdot \sin 17^\circ$$

$$\sin(42^\circ - 17^\circ)$$

$$\sin(42^\circ - 17^\circ)$$

$$\sin(25^\circ)$$



$$95 - \sin \frac{\pi}{5} \cos \frac{\pi}{2} + \sin \frac{\pi}{2} \cos \frac{\pi}{5}$$

$$\sin \left( \frac{\pi}{5} + \frac{\pi}{2} \right) = \frac{7\pi}{10}$$

$$97 - \sin 2x = 2 \sin x$$

$$96 - \frac{\tan 19^\circ + \tan 47^\circ}{1 - \tan 19^\circ \tan 47^\circ}$$

$$98 - \sin 2x - \tan x = 0$$

$$\frac{\tan(19^\circ + 47^\circ)}{\tan(56^\circ)}$$

$$100 - \cos 75^\circ = \frac{\sqrt{5} - \sqrt{2}}{4}$$

$$99 - \sin 15^\circ = \frac{\sqrt{5} - \sqrt{2}}{4}$$

$$101 - \tan \left( \frac{7\pi}{12} \right) = \tan \left( \frac{\pi}{4} + \frac{\pi}{3} \right)$$

$$\frac{\tan \left( \frac{\pi}{4} \right) + \tan \left( \frac{\pi}{3} \right)}{1 - \tan \left( \frac{\pi}{4} \right) \tan \left( \frac{\pi}{3} \right)}$$

$$\frac{1 + \sqrt{3}}{1 - \sqrt{3}} \quad \text{or} \quad -(2 + \sqrt{3})$$