

Caneta Branca - Relações Métricas No triângulo retângulo e teorema de Pitágoras

$$\begin{aligned} 01. \quad a^2 &= (\sqrt{3})^2 + (\sqrt{4})^2 \\ a^2 &= 3+4 \\ a &= \sqrt{7} \quad (B) \end{aligned}$$

$$\begin{aligned} 02. \quad x^2 &= 10^2 - 6^2 \\ x^2 &= 100 - 36 \\ x &= \sqrt{64} \\ x &= 8m \end{aligned}$$

$$\begin{aligned} 03. \quad (\overline{AC})^2 &= 1^2 + 2^2 \\ (\overline{AC})^2 &= 1+4 \\ (\overline{AC})^2 &= 5 \end{aligned}$$

$$\begin{aligned} (\overline{CD})^2 &= 3^2 - (\overline{AC})^2 \\ (\overline{CD})^2 &= 9-5 \\ (\overline{CD}) &= \sqrt{4} \\ \overline{CD} &= 2 \quad (B) \end{aligned}$$

$$\begin{aligned} 04. \quad b^2 &= a^2 + a^2 \\ b^2 &= 2a^2 \end{aligned}$$

$$\begin{aligned} c^2 &= a^2 + b^2 \\ c^2 &= a^2 + 2a^2 \\ c^2 &= 3a^2 \end{aligned}$$

$$\begin{aligned} x^2 &= a^2 + c^2 \\ x^2 &= a^2 + 3a^2 \\ x^2 &= 4a^2 \\ x &= \sqrt{4a^2} \\ x &= 2a \quad (B) \end{aligned}$$

$$\begin{aligned} 5. \quad h^2 &= 6^2 - 2^2 \\ h^2 &= 36 - 4 \\ h &= \sqrt{32} \\ h &= 4\sqrt{2} \end{aligned}$$

$$\begin{aligned} A &= B \cdot h/2 \\ A &= 2 \cdot 4\sqrt{2}/2 \\ A &= 4\sqrt{2} \quad (C) \end{aligned}$$

$$06. \quad (\overline{AC})^2 = 6^2 + 8^2$$

$$(\overline{AC})^2 = 10^2$$

$$10^2 = x^2 + (2x)^2$$

$$100 = x^2 + 4x^2$$

$$100 = 5x^2$$

$$x^2 = 20$$

$$x = \sqrt{20} \therefore x = 2\sqrt{5} \quad (a)$$

$$07. \quad x^2 = (10.5)^2 + (200 - 16.5)^2$$

$$x^2 = 50^2 + 120^2$$

$$x = \sqrt{16900}$$

$$x = 130 \text{ cm} \therefore x = 1,3 \text{ m} \quad (b)$$

$$08. \quad 13^2 = (8^2 - 4^2) + (x+4)^2$$

$$169 = 48 + x^2 + 8x + 16$$

$$x^2 + 8x - 105 = 0$$

$$\begin{array}{r|l} 105 & 3 \\ 35 & 3 \\ 7 & 7 \\ 1 & 1 \end{array}$$

$$\frac{7}{7} + \frac{-15}{-5} = -8$$

$$\therefore x_1 = 7 \text{ m}$$

$$x_2 = -15 \text{ (NÃO convém)}$$

09.

$$P = \frac{(13+14+15)}{3} = 21$$

$$A = \sqrt{21(21-13)(21-14)(21-15)}$$

$$A = \sqrt{21 \cdot 8 \cdot 7 \cdot 6}$$

$$A = \sqrt{3 \cdot 7 \cdot 2^2 \cdot 2 \cdot 7 \cdot 2 \cdot 3}$$

$$A = \sqrt{3^2 \cdot 7^2 \cdot 2^4}$$

$$A = 84$$

$$\frac{84}{2} = 42$$

$$\frac{84 \cdot 2}{14}$$

$$10. (R + R')^2 = (R - R')^2 + x^2$$

$$x^2 = (R^2 + 2R \cdot R' + R'^2) - (R^2 - 2R R' + R'^2)$$

$$x^2 = 4RR'$$

$$x = 2\sqrt{RR'}$$

$$11. (\overline{AE})^2 = 30^2 + 40^2$$

$$(\overline{AE}) = 50$$

$$(\overline{CD})^2 = (\overline{AE}) \cdot (\overline{CE})$$

$$(\overline{CE}) = 20^2 / 50$$

$$(\overline{CE}) = 400 / 50$$

$$(\overline{CE}) = 8 \quad (c)$$