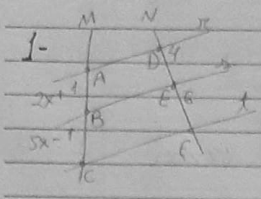
ATIVIDADES DE OUTUBRO - TIGONOMETRIA

TEOREMA DE TALES - PÁG 238

1-



$\frac{2x+1}{5x-1} \neq \frac{4}{6}$

$4(5x-1) = 6(2x+1)$

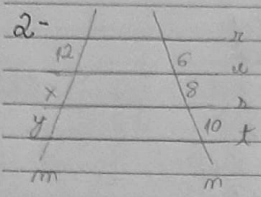
$20x - 4 = 12x + 6$

$20x - 12x = 6 + 4$

$8x = 10$

$x = \frac{5}{4}$

2-



$\frac{12}{x} = \frac{6}{8}$

$6x = 12.8$

$x = 16$

$\frac{x}{y} = \frac{8}{10}$

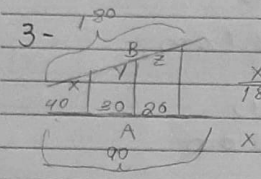
$\frac{16}{y} = \frac{8}{10}$

$10.16 = 8y$

$y = 20$

$x.y = 16.20 = 320$

3-



$\frac{x}{180} = \frac{40}{90}$ $\frac{y}{180} = \frac{30}{90}$ $\frac{z}{180} = \frac{20}{90}$

$x = \frac{40}{90} \cdot 180^2$ $y = \frac{30}{90} \cdot 180^2$ $z = \frac{20}{90} \cdot 180$

$x = 80$ $y = 60$ $z = 40$

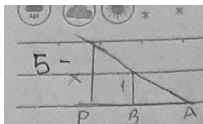
4- $\frac{x-1}{2} = \frac{x+3}{3}$

$3(x-1) = 2(x+3)$

$3x - 3 = 2x + 6$

$3x - 2x = 6 + 3$

$x = 9$



Poste = 12 m

Bastão = 0,6 m

altura x 1

sombra 12 0,6

$0,6x = 1.12$

$x = \frac{12}{0,6} \cdot \frac{10}{10}$

$x = \frac{120}{6} \rightarrow 20$ m

6- AD = 10

$\frac{AB}{AD} = \frac{AB'}{AD'}$ $\frac{BC}{AD} = \frac{B'C'}{AD'}$

$\frac{2}{10} = \frac{AB}{13}$ $\frac{3}{10} = \frac{B'C'}{13}$

$10.AB' = 2.13$ $10.B'C' = 3.13$

$AB' = \frac{26}{10}$ $B'C' = \frac{39}{10}$

$AB' = 2,6$ cm $B'C' = 3,9$ cm

$\frac{CD}{AD} = \frac{C'D'}{AD'}$ $\frac{5}{10} = \frac{C'D'}{13}$ $10\,C'D' = 5.13$ $C'D' = 6,5$ cm

SEMELHANÇA DE TRIÂNGULOS - PAG 243

9- I) $\frac{AC}{MO} = \frac{BC}{NO}$ II) $\frac{AB}{MN} = \frac{BC}{NO}$

$\frac{7}{N} = \frac{15:3}{18:3}$ $\frac{8}{O} = \frac{15:3}{18:3}$

$5.N = 7.6$ $5.O = 8.6$

$N = 8,4$ cm $O = 9,6$ cm

10- $\frac{AB}{ED} = \frac{BC}{DC} \Rightarrow \frac{15}{x} = \frac{20}{15} \Rightarrow 20x = 15.15 \Rightarrow \frac{225}{20} \Rightarrow x = 11,25$

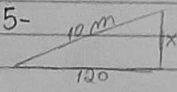
$\frac{AC}{EC} = \frac{BC}{DC} \Rightarrow \frac{25}{y} = \frac{20}{15} \Rightarrow 20y = 25.15 \Rightarrow y = \frac{375}{20} \Rightarrow 18,75$

11- $P1 = 35$ $P2 = 105$ $R = \frac{P1}{P2}$ $R = \frac{35}{105} : \frac{5}{5} = \frac{7}{21}$

$R = \frac{1}{3}$

13- $\frac{AE}{CB} = \frac{8-x}{8}$ $\frac{6}{12} = \frac{8-x}{8}$ $96 - 12x = 48$ $-12x = 48 - 96$ $-12x = -48$ $x = \frac{-48}{-12} \Rightarrow 4$

14- $\frac{2x}{15} = \frac{15-x}{15}$ $2x = 15 - x$ $2x + x = 15$ $3x = 15 \Rightarrow x = \frac{15}{3} \Rightarrow x = 5$ $2x = 2.5 = 10$

15- 

$A = 50$ $T = 120$ $\frac{10}{50} = \frac{x}{120}$

$50x = 10.120$

$x = \frac{1200}{50} \Rightarrow x = 24\ m$

16- $z = 12 - x$ $y = 6 - x$ $\frac{12}{12-x} = \frac{6}{x} \Rightarrow 12.x = 6(12-x) \Rightarrow 12x = 72 - 6x$ (4)

$12x + 6x = 72 \Rightarrow 18x = 72 \Rightarrow x = \frac{72}{18}$

17- $\frac{x}{6} = \frac{6-x}{3}$

$3.x = 6.(6-x)$

$3x = 36 - 6x$

$3x + 6x = 36$

$9x = 36$

$x = \frac{36}{9} \Rightarrow x = 4$

RELAÇÕES MÉTRICAS NOS TRIÂNGULOS RETÂNGULOS - PAG 248

27- $15^2 = x^2 + 12^2$

$225 = x^2 + 144$

$225 - 144 = x^2$

$x = 9$

$\frac{12}{z} = \frac{15}{12}$

$15.z = 12.12$

$z = \frac{12.12}{15}$ $z = \frac{48}{5} = 9,6$

$\frac{9}{y} = \frac{15}{12}$

$15y = 9.12$

$y = \frac{9.12}{15}$

$y = \frac{36}{5} = 7,2$

$AC = 15$

$w + z = 15$

$w + 9,6 = 15$

$w = 15 - 9,6$

$w = 5,4$

28- $\frac{b}{15} = \frac{20}{b}$ $\frac{h}{5} = \frac{15}{h}$ $\frac{c}{5} = \frac{20}{c}$

$b^2 = 15.20$ $h^2 = 5.15$ $c^2 = 5.20$

$b = \sqrt{300}$ $h = \sqrt{75}$ $c = \sqrt{100}$

$b = 10\sqrt{3}$ $h = 5\sqrt{3}$ $c = 10$

29- $x^2 = (3\sqrt{2})^2 + (\sqrt{7})^2$

$y^2 = 9 \cdot 2 + 7$

$y = \sqrt{25}$

$y = 5$

②

$\frac{BC}{MB} = \frac{AC}{AB}$

$\frac{\sqrt{7}}{c} = \frac{5}{3\sqrt{2}}$

$5c = 3\sqrt{2}\sqrt{7}$

$c = \frac{3\sqrt{14}}{5}$

① $\frac{AB}{AM} = \frac{AC}{AB}$

$\frac{3\sqrt{2}}{y} = \frac{5}{3\sqrt{2}}$

$5y = (3\sqrt{2})^2$

$5y = 9 \cdot 2$

$y = \frac{18}{5}$

③ $\frac{BC}{MC} = \frac{AC}{BC}$

$\frac{\sqrt{7}}{x} = \frac{5}{\sqrt{7}}$

$5x = (\sqrt{7})^2 \Rightarrow x = \frac{7}{5}$

30- $\frac{x}{y} = \frac{9}{16}$ $\quad x + y = 10$

$x = \frac{9}{16} \cdot y$

$\Rightarrow \frac{9y}{16} + \frac{y \cdot 16}{1 \cdot 16} = \frac{10 \cdot 16}{1 \cdot 16}$

$\frac{9y}{16} + \frac{16y}{16} = \frac{160}{16}$

$25y = 160$

$y = \frac{160 : 5}{25 : 5} = \frac{32}{5}$

$x = \frac{9}{16} \cdot \frac{32}{5}$

$x = \frac{18}{5}$

HIPOTENUSA:

$AC = 10$

$\frac{a}{\frac{18}{5}} = \frac{10}{a}$

$a \cdot a = 16^2 \cdot \frac{18}{5}$

$a^2 = 36 \Rightarrow a = \sqrt{36} = 6$

$\frac{b}{\frac{32}{5}} = \frac{10}{b}$ $\quad b \cdot b = 10^2 \cdot \frac{32}{5}$

$b^2 = 64$

$b = \sqrt{64} = 8$

31- Após 2 hrs

A → distância → $DA = 40$ km

$(V_A = 20$ km/h$)$

B → distância → $DB = 50$ km

$(V_B = 25$ km/h$)$

PITÁGORAS

$x^2 = 40^2 + 50^2$

$x^2 = 1600 + 2500$

$x^2 = 4100$

$x = \sqrt{4100}$

$x = \sqrt{100 \cdot 41}$

$x = 10\sqrt{41}$ km