

① a)  $A = bh = 4 \cdot 8 = 32 \text{ cm}^2$

b)  $\sin 30^\circ = \frac{op}{12} \Rightarrow \sin 30^\circ = \frac{1}{2} \Rightarrow \frac{op}{12} = \frac{1}{2} \Rightarrow op = 6 \text{ cm}$

$\cos 30^\circ = \frac{ad}{12} \Rightarrow \frac{\sqrt{3}}{2} = \frac{ad}{12} \Rightarrow ad = 6\sqrt{3}$

$A = bh = (6)(6\sqrt{3}) = 36\sqrt{3}$

② a)  $A = l^2 \Rightarrow A = 8^2 = 64 \text{ cm}^2$

b)  $A = 7 \cdot 1^2 = 50.41 \text{ cm}^2$

c)  $A = \sqrt{3}^2 = 3 \text{ cm}^2$

d)  $L = \frac{6}{\sqrt{2}} = \frac{6\sqrt{2}}{2} = 3\sqrt{2}$       $A = l^2 = (3\sqrt{2})^2 = 9 \cdot 2 = 18 \text{ cm}^2$

③ a)  $L = \sqrt{A} \Rightarrow L = \sqrt{25} = 5 \text{ cm}$

b)  $L = \sqrt{12} = \sqrt{3 \cdot 4} = \sqrt{3 \cdot 2^2} = 2\sqrt{3} \text{ cm}$

④ a)  $A = \frac{dD}{2} = \frac{(5)(8)}{2} = 20 \text{ cm}^2$

b)  $25 = 9 + \left(\frac{D}{2}\right)^2 \Rightarrow \frac{D^2}{4} = 16 \Rightarrow D^2 = 64 \Rightarrow D = 8 \text{ cm} \Rightarrow A = \frac{1}{2} dD = \frac{1}{2} (6)(8) = 24 \text{ cm}^2$

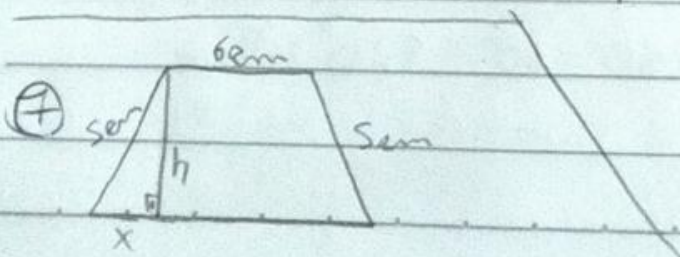
⑤  $\sin 60^\circ = \frac{\sqrt{3}}{2} \Rightarrow \sin 60^\circ = \frac{d/2}{8} = \frac{d}{16} \Rightarrow \frac{\sqrt{3}}{2} = \frac{d}{16} \Rightarrow d = 8\sqrt{3} \text{ cm}$

$\cos 60^\circ = \frac{1}{2} \Rightarrow \cos 60^\circ = \frac{D/2}{8} = \frac{D}{16} \Rightarrow \frac{1}{2} = \frac{D}{16} \Rightarrow D = 8 \text{ cm}$

$A = \frac{1}{2} dD = \frac{1}{2} (8\sqrt{3})(8) = 32\sqrt{3} \text{ cm}^2$

⑥  $A = \frac{(B+b)h}{2} = \frac{(7+5)4}{2} = 24 \text{ cm}^2$

⑦  $4L = 72 \Rightarrow L = 18 \text{ cm} \Rightarrow A = 18^2 = 324 \text{ cm}^2$



$x = (12 - 6) \frac{1}{2} = 3 \text{ cm}$

$h^2 + 9 = 25 \Rightarrow h^2 = 16 \Rightarrow h = 4$

$A = \frac{(B+b)h}{2} = \frac{(18)(4)}{2} = 36 \text{ cm}^2$

8)  $A = bh = 6 \cdot 4 = 24 \text{ cm}^2$

9)  $\sin 60^\circ = \frac{op}{6} = \frac{\sqrt{3}}{2} \rightarrow op = 3\sqrt{3} \rightarrow A = bh = (3)(3\sqrt{3}) = 24\sqrt{3} \text{ cm}^2$

10)  $A = \frac{1}{2} bh = bh = \frac{1}{2}(8)(5) = 20 \text{ cm}^2$

11)  $25 + x^2 = 169 \rightarrow x^2 = 144 \rightarrow x = 12 \text{ cm} \rightarrow A = \frac{1}{2} bh = \frac{1}{2}(12)(5) = 30 \text{ cm}^2$

12)  $A = \frac{6^2 \sqrt{3}}{4} = \frac{36 \sqrt{3}}{4} = 9\sqrt{3} \text{ cm}^2$

13)  $\frac{f}{\sin 30^\circ} = \frac{h}{\sin 45^\circ} \rightarrow h = \frac{6 \sin 45^\circ}{3 \sin 30^\circ} = \frac{6\sqrt{2}}{2}$

$A = \frac{1}{2} bh = \frac{1}{2}(8)(3\sqrt{2}) = 12\sqrt{2} \text{ cm}^2$

14)  $A = bh; h = \frac{1}{2} b; A = \frac{1}{2} b^2 \rightarrow 450 = \frac{1}{2} b^2 \rightarrow 900 = b^2 + b = 30 \text{ m}$

15)  $b \cdot h = 100; (1, 1b)(0, 9h) = A \rightarrow (1, 1)(0, 9) b \cdot h = A \rightarrow 0,99bh = A \rightarrow A = 99 \text{ cm}^2$

16) a)

$16 + h^2 = 64$

$h^2 = 48$

$h = 4\sqrt{3} \text{ cm}$

$A_c = \pi \left(\frac{4\sqrt{3}}{3}\right)^2 = \pi \left(\frac{16 \cdot 3}{9}\right) = \pi \left(\frac{4 \cdot 16}{3}\right) = \frac{16\pi}{3} \text{ cm}^2$

$A_t = \frac{1^2 \sqrt{3}}{4} = \frac{64\sqrt{3}}{4} = 16\sqrt{3} \text{ cm}^2$

$A_p = 16\sqrt{3} - \frac{16\pi}{3} = \frac{48\sqrt{3} - 16\pi}{3} \text{ cm}^2$

17)  $A = \frac{1}{4} \pi r^2 = \frac{1}{4} \pi (100) = 25\pi \text{ cm}^2$

18) a) a medida do ângulo é  $180^\circ - 60^\circ = 120^\circ$  então  
 $A = \frac{6^2 \pi}{3} = 12\pi \text{ cm}^2$

(13)  $A = 450 \text{ cm}^2$

$A = (0,8)(30)(0,8)(15) = (0,64)(450) = 288 \text{ cm}^2$

$p = 1 - \frac{288}{450} = 1 - 0,64 = 36\%$

letra c

(14) a) setor circular

$\theta_{\text{rad}} = \frac{\theta \cdot \pi}{180} = \frac{135}{180} \cdot \pi = \frac{3\pi}{4}$

$A = \frac{1}{2} \left(\frac{3\pi}{4}\right) (64) = \frac{3\pi}{8} (64) = 24\pi \text{ cm}^2$

triângulo

$A = \frac{1}{2} b h$ ;  $b = 8 \text{ cm}$ ;  $h = 8 \text{ cm}$   $135^\circ$

$h = 8 \cdot \frac{\sqrt{3}}{2} = 4\sqrt{3} \text{ cm}$

$A = \frac{1}{2} (8)(4\sqrt{3}) = 16\sqrt{3} \text{ cm}^2$

$A = 24\pi - 16\sqrt{3} \text{ cm}^2$

$A = 8(\pi - \sqrt{3}) \text{ cm}^2$

(15)  $(12-x)^2 + y^2 = (6+x)^2$

$144 - 24x + x^2 + y^2 = 36 + 12x + x^2$

$108 - 24x + y^2 = 12x$

$y^2 + 108 = 36x$

$y^2 = 36x - 108$

$x = \frac{48 \pm \sqrt{144+288}}{2}$

$x = \frac{48 \pm 24\sqrt{3}}{2}$

$x = \frac{48 + 24\sqrt{3}}{2}$

$6 = 12 - y - x$

$-6 = y - x$

$y = 6 - x$

$y^2 = 36 - 12x + x^2$

$36 - 12x + x^2 = 36x - 108$

$x^2 - 48x + 144 = 0$

$x = \frac{48 \pm \sqrt{2304 - 576}}{2}$

$x = 24 + 12\sqrt{3}$

$x = 44,78 \text{ cm}$

$x = \frac{48 - 24\sqrt{3}}{2} = 24 - 12\sqrt{3} \approx 3,21 \text{ cm}$

$A = \pi r^2 = \pi (24 - 12\sqrt{3})^2 =$

$A = \pi (1008 - 576\sqrt{3})$

$A = 1008\pi - 576\pi\sqrt{3} \text{ cm}^2 \approx 32,48 \text{ cm}^2$

1 / 1 Wesley

14 C

15 litera E

16)  $A_{\Delta} = \frac{1}{2} l \cdot h = \frac{1}{2} (\frac{1}{4})(\frac{1}{2}) = \frac{1}{16} m^2$ ;  $A_{\text{branco}} = 4A_{\Delta} = 4(\frac{1}{16}) = \frac{4}{16} = \frac{1}{4} m^2$

$A_{\text{cinza}} = A_t - A_{\text{branco}} = 1 - \frac{1}{4} = \frac{3}{4} m^2$

$P_{\text{cinza}} = 30 A_{\text{cinza}} = 30(\frac{3}{4}) = R\$ 22,50$

$P_{\text{branco}} = 50 A_{\text{branco}} = 50(\frac{1}{4}) = R\$ 12,50$

$P_{\text{t}} = \sum P = 22,5 + 12,5 = R\$ 35,00$

17)  $\theta + 60^\circ + 60^\circ + 90^\circ = 360^\circ$  /  $x^2 = 2 - 2 \cos 150^\circ$

$\theta = 150^\circ$

$x = 2 + 2 \cos 30^\circ$

$= 2 + 2(\frac{\sqrt{3}}{2})$

$= 2 + \sqrt{3}$

$A = x^2 = 2 + \sqrt{3}$

18) a)  $x = \frac{1}{4} AB$ ;  $A_{\text{EFGH}} = A_{\text{ABCD}} - 4A_{\text{AEH}}$

$A_{\text{AEH}} = \frac{1}{2}(3x)(x) = \frac{1}{2}(3x^2) = \frac{3}{2}x^2$

$A_{\text{ABCD}} = (4x)^2 = 16x^2$

$A_{\text{EFGH}} = 16x^2 - 6x^2 = 10x^2$

$R = \frac{A_{\text{EFGH}}}{A_{\text{ABCD}}} = \frac{10x^2}{16x^2} = \frac{5}{8} = A_{\text{EFGH}} = \frac{5}{8} A_{\text{ABCD}}$

19) a)  $A_{\text{total}} = 4(\frac{1}{2}(x)(10-x)) = 2(10x - x^2) = 20x - 2x^2 m^2$

$A_{\text{total}} = 20(2) - 2(4) = 40 - 8 = 32 m^2$

$A_t = (x + 10 - x)^2 = 100 m^2$

$A_{\text{branco}} = A_t - A_{\text{total}} = 100 - 32 = 68 m^2$

19)  $A_{com} = 100 - (20x - 2x^2) = 2x^2 - 20x + 100 m^2$

20)  $P_t = P_{com} + P_{al} = 4(2x^2 - 20x + 100) + 3(20x - 2x^2)$   
 $= 8x^2 - 80x + 400 + 60x - 6x^2$   
 $= 2x^2 - 20x + 400$

$\Delta = 400 - 3200 = -2800 \rightarrow P_{min} = \frac{\Delta}{4a} = \frac{-2800}{8} = R\$ 350,00$

21)  $2(24 + 18 + 8) = A$  letra D  
 $100 = A$

22)  $A_{ABC} = \frac{1}{2} BDh - A_{ABD}; A_{ADE} = \frac{1}{2} BDh - A_{ABD}$

A base e alturas são iguais então tem a mesma área

23)  $A_{ABC} = \frac{1}{2} CHh - A_{ACH}$   
 $A_{AGH} = \frac{1}{2} CHh - A_{ACH} = A_{ABC} = A_{AGH}$

$A_{DEF} = \frac{1}{2} EGh - A_{DEG}; A_{DGH} = \frac{1}{2} EGh - A_{DEG}$  então  $A_{DGH} = A_{DEF}$   
 $A_{AGDH} = A_{ABC} + A_{DEF} = 5 + 4 = 9 cm^2$

24)  $A_2 = 160 \cdot 120 - 50 \cdot 60 = 19200 - 3000 = 16200 m^2$

$A_{ABCP} = 8100 \rightarrow \frac{(AP+50)160}{2} = 8100 + 50AP + 2500 = 8100 \rightarrow$

$50AP = 5600 \rightarrow AP = 112; \text{distância} = 120 - 112 = 8 m$

letra B

25)  $A_{AEC} = A_{ADCE} - A_{ACD} = A_{ADCE} + A_{CEB} - A_{ACD}$

$(EF = h = \frac{\sqrt{3}}{2} = L = \frac{\sqrt{2}}{2}(8) = 4\sqrt{3}); =$

$\frac{(6+h)\sqrt{3}}{2} + \frac{\sqrt{3} \cdot 4\sqrt{3}}{2} = \frac{6 \cdot \sqrt{3}}{2}$

$(12 + 8\sqrt{3}) + (8\sqrt{3}) - (24)$

$= 12 + 16\sqrt{3} - 24$

$= 16\sqrt{3} - 12$