2012/10ª Classe/Guia de Correcção de Matemática / 2ª Época

Obs: Senhor professor, considere outro método de resolução desde que esteja certo.

Perg.	Resposta	Cotação Parc.	Tot.
1.	a) $\left(\frac{1}{2}\right)^5 \div \left(\frac{1}{2}\right)^3 \cdot \left(\frac{4}{3}\right)^2 = \left(\frac{1}{2}\right)^{5-3} \cdot \left(\frac{4}{3}\right)^2 = \left(\frac{1}{2}\right)^2 \cdot \left(\frac{4}{3}\right)^2 = \left(\frac{1\cdot 4}{2\cdot 3}\right)^2 = \left(\frac{4}{6}\right)^2 = \left(\frac{2}{3}\right)^2 = \frac{4}{9}$ **(0,1)** **(0,1)** **(0,1)** **(0,1)** **(0,1)**	0,5	
	b) $\left(\sqrt{5}+1\right)\left(\sqrt{5}-1\right) = \left(\sqrt{5}\right)^2 - 1^2 = 5-1 = 4$ **(0,2)** **(0,3)**	0,5	
	c) $2\log_2 4^2 - \log_3 9 + 5 = 4\log_2^4 - 2 + 5 = 4\cdot 2 - 2 + 5 = 8 - 2 + 5 = 11$ **(0,1)** **(0,2)** **(0,1)** **(0,1)**	0,5	**1,5**
2.	a) $2A(x) + B(x) = 2\left(3x^2 - 2x\right) + \frac{1}{2}x - \frac{1}{10} = 6x^2 - 4x + \frac{1}{2}x - \frac{1}{10}$ **(0,5)**		
	$6x^2 - \frac{8}{2}x + \frac{1}{2}x - \frac{1}{10} = 6x^2 - \frac{7}{2}x - \frac{1}{10}$ **(0,5)** **(0,5)**	1,5	
	b) $A(x)\cdot C(x) = \left(3x^2 - 2x\right)\cdot 2x = 3x^2 \cdot 2x - 2x \cdot 2x = 6x^3 - 4x^2$ **(0,4)** **(0,2)** **(0,4)**	1,0	**2,5**
3.	a) $\Delta = 0 \Leftrightarrow b^2 - 4ac = 0 \Leftrightarrow \left(-1-m\right)^2 - 4\cdot 3\left(m-2\right) = 0 \Leftrightarrow 1 + 2m + m^2 - 12m + 24 = 0$ **(0,5)** **(0,4)** **(0,3)** **(0,4)**		
	$\Leftrightarrow m^2 - 10m + 25 = 0 \Leftrightarrow \left(m-5\right)^2 = 0 \Leftrightarrow m - 5 = 0 \Rightarrow m = 5$ **(0,1)** **(0,1)** **(0,1)** **(0,1)**	2,0	
	b) $P = \frac{c}{a} \Leftrightarrow \frac{c}{a} = \frac{3}{2} \Leftrightarrow \frac{m-2}{3} = \frac{3}{2} \Leftrightarrow 2m - 4 = 9 \Leftrightarrow 2m = 13 \Rightarrow m = \frac{13}{2}$ **(0,3)** **(0,1)** **(0,2)** **(0,1)** **(0,1)** **(0,2)**	1,0	**3,0**
4.	a) $x^4 - 8x^2 + 16 = 0$; seja $x^2 = t \Rightarrow t^2 - 8t + 16 = 0 \Leftrightarrow \left(t-4\right)\left(t-4\right) = 0 \Leftrightarrow t = 4$ **(0,2)** **(0,2)** **(0,4)** **(0,2)**		
	$t = 4 \Rightarrow x^2 = 4 \Rightarrow x = \pm 2$ **(0,5)**	1,5	

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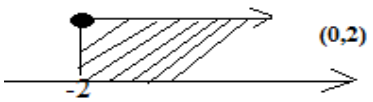
b) $3x+1 \geq \frac{1}{2}x-4 \Leftrightarrow 3x-\frac{1}{2}x \geq -4-1 \Leftrightarrow \frac{6x-x}{2} \geq -5 \Leftrightarrow \frac{5x}{2} \geq -5 \Leftrightarrow 5x \geq -10 \Rightarrow x \geq -2$

(0, 2) **(0, 2)** **(0,1)** **(0,1)** **(0,1)**



Sol: $x \in [-2;+\infty[$ **(0,1)**

1,0 **2,5**

5. a) $A \cap B = \{c,d\}$ **(1,0)** b) $B \setminus A = \{e,f\}$ **(1,0)** 2,0 **2,0**

6. a) $D_g = IR$ **(0,5)** $CD_g =]-\infty;4]$ **(0,5)** b) $V(2;4)$ **(0,5)** c) $x=2$ **(0,5)**

d)

x	$]-\infty;0[$	0	$]0;4[$	4	$]4;+\infty[$
y	-	0	+	0	-

(0,5) **(0,5)** **(0,5)**

2,0

1.5 **3,5**

7. Dados:

$|\overline{AD}| = 3cm,\ |\overline{AC}| = 5cm$

a) $h = ?$ *b)* $A = ?$

a) $|\overline{AC}|^2 = |\overline{AD}|^2 + h^2 \Leftrightarrow h^2 = (5cm)^2 - (3cm)^2 \Leftrightarrow h^2 = 25cm^2 - 9cm^2$

(0,4) **(0,1)** **(0,2)**

1,0

$h^2 = 16cm^2 \Leftrightarrow h = \pm\sqrt{16cm^2} \Leftrightarrow h = 4cm$ **(0,1)**

(0,1) **(0,1)**

b) $A_\Delta = \frac{b \times h}{2} \Leftrightarrow A_\Delta = \frac{6cm \times 4cm}{2} \Leftrightarrow A_\Delta = \frac{24cm^2}{2} \Leftrightarrow A_\Delta = 12cm^2$ **(0,2)**

(0,4) **(0,2)** **(0,2)**

1,0 **2,0**

8. a) $\frac{34}{100} \times 4000 = 1360$

(0,5) **(0,5)**

1,0

b) $\frac{1200}{4000} \times 100\% = 30\%$ **(0,5)**

(0,5)

1,0

c) $34\% + 30\% + 10\% + x = 100\% \Leftrightarrow 74\% + x = 100\% \Leftrightarrow x = 26\% = \frac{26}{100} \times 4000 = 1040$

(0,5) **(0,2)** **(0,3)**

1,0 **3,0**