

*Th i gian: 90 phút*

*Ngày thi: 18/10/2018*

**Bài 1 (1,5 i m) Tính:**

a)  $\left(\sqrt{50} - 4\sqrt{8} + 2\sqrt{\frac{1}{2}}\right) \cdot \sqrt{5}$

b)  $\frac{3}{3+\sqrt{6}} + \frac{2\sqrt{3}-\sqrt{6}}{\sqrt{2}-1} - \sqrt{10-4\sqrt{6}}$

**Bài 2 (2 i m) Gi i ph ng trình**

a)  $\sqrt{x-2} - 6\sqrt{\frac{x-2}{9}} = 12 - \frac{5}{2}\sqrt{4x-8}$

b)  $x - \sqrt{16-3x} = 2$

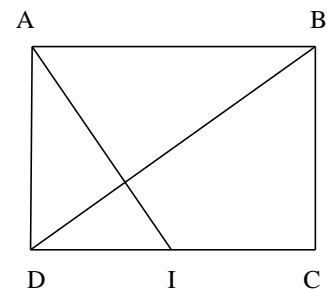
**Bài 3 (2,5 i m) Cho hai bi u th c:**  $A = \frac{\sqrt{x}-2}{\sqrt{x}+2}$  v i x 0;  $B = \frac{\sqrt{x}+2}{\sqrt{x}-2} - \frac{3}{\sqrt{x}+2} + \frac{12}{4-x}$   
v i x 0; x 4

a) Tìm x  $A < \frac{1}{3}$

b) Ch ng minh:  $B = \frac{\sqrt{x}-1}{\sqrt{x}-2}$

c) Cho bi u th c  $P = \frac{1}{A.B}$ . V i x  $\in \mathbb{Z}$  tìm giá tr l n nh t c a P.

**Bài 4 (3,5 i m).** 1) Cho hình v , bi t ABCD là hình ch nh t, AH  $\perp$  BD t i H.



a) Bi t AB = 8cm, AD = 6cm. Tính BD, AH, góc ABD (c nh làm tròn n ch s th p phân th hai, góc làm tròn n phút)

b) Ch ng minh: DH.DB = AH.AI

2) Cho hình thang vuông ABCD có A = D = 90°, AB = 9cm, CD = 16cm, BC = 25cm. Trên c nh BC l y i m E sao cho BE = AB

a) Ch ng minh: AED = 90°

b) Tính dài o n AE, DE

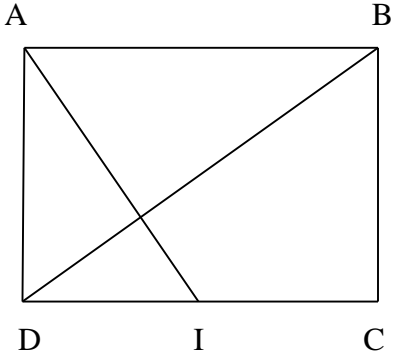
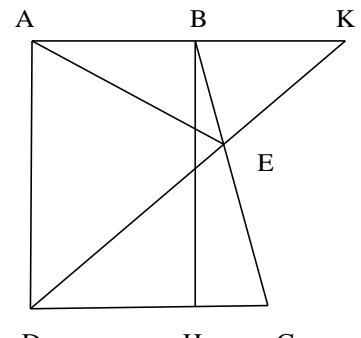
**Bài 5 (0,5 i m) Ch ng minh b t ng th c sau:**

$$\frac{1}{\sqrt{1}+\sqrt{2}} + \frac{1}{\sqrt{3}+\sqrt{4}} + \frac{1}{\sqrt{5}+\sqrt{6}} + \dots + \frac{1}{\sqrt{79}+\sqrt{80}} > 4$$

**ÁP ÁN THI KH O SÁT TI - N M H C 2018 - 2019**

<b>Bài</b>	<b>áp án</b>	<b>Bi u i m</b>
<b>Bài 1 1,5</b>	<p>a) <math>\left(\sqrt{50} - 4\sqrt{8} + 2\sqrt{\frac{1}{2}}\right) \cdot \sqrt{5}</math>  <math>= (5\sqrt{2} - 8\sqrt{2} + \sqrt{2}) \cdot \sqrt{5} = -2\sqrt{10}</math></p> <p>b) <math>\frac{3}{3+\sqrt{6}} + \frac{2\sqrt{3}-\sqrt{6}}{\sqrt{2}-1} - \sqrt{10-4\sqrt{6}}</math>  <math>= \frac{3(3-\sqrt{6})}{(3+\sqrt{6})(3-\sqrt{6})} + \frac{\sqrt{6}(\sqrt{2}-1)}{\sqrt{2}-1} - \sqrt{(\sqrt{6}-2)^2}</math>  <math>= 3 - \sqrt{6} + \sqrt{6} - \sqrt{6} + 2 = 5 - \sqrt{6}</math></p>	<b>0,75</b>  <b>0,75</b>
<b>Bài 2 2</b>	<p>a) <math>\sqrt{x-2} - 6\sqrt{\frac{x-2}{9}} = 12 - \frac{5}{2}\sqrt{4x-8}</math>    K: x = 2  ... <math>\sqrt{x-2} = 3</math>  <math>\Leftrightarrow x = 11(t/m)</math></p> <p>b) <math>x - \sqrt{16-3x} = 2</math>  <math>\sqrt{16-3x} = x-2</math>    K: 2    x = <math>\frac{16}{3}</math>  <math>16 - 3x = x^2 - 4x + 4</math>  <math>x^2 - x - 12 = 0</math>  <math>\begin{cases} x = 4(TM) \\ x = -3(L) \end{cases}</math></p>	<b>k: 0,25</b>  <b>0,5</b> <b>0,25</b>  <b>k: 0,25</b>  <b>0,25</b>  <b>0,5</b>
<b>Bài 3 2,5</b>	<p>a) <math>A &lt; \frac{1}{3} \Leftrightarrow \dots \frac{2\sqrt{x}-8}{3(\sqrt{x}+2)} &lt; 0 \Leftrightarrow 2\sqrt{x}-8 &lt; 0</math>  <math>\Leftrightarrow 2\sqrt{x} &lt; 8 \Leftrightarrow \dots x &lt; 16</math>, k t h p    K: x = 0  <math>\Leftrightarrow 0 &lt; x &lt; 16</math></p> <p>b) <math>B = \frac{\sqrt{x}+2}{\sqrt{x}-2} - \frac{3}{\sqrt{x}+2} + \frac{12}{4-x}</math>  <math>= \frac{(\sqrt{x}+2)(\sqrt{x}+2) - 3(\sqrt{x}-2) - 12}{(\sqrt{x}+2)(\sqrt{x}-2)}</math>  <math>= \frac{x+4\sqrt{x}+4-3\sqrt{x}+6-12}{(\sqrt{x}+2)(\sqrt{x}-2)} = \frac{x+\sqrt{x}-2}{(\sqrt{x}+2)(\sqrt{x}-2)}</math>  <math>= \frac{(\sqrt{x}+2)(\sqrt{x}-1)}{(\sqrt{x}+2)(\sqrt{x}-2)} = \frac{\sqrt{x}-1}{\sqrt{x}-2}</math></p>	<b>0,25</b>  <b>0,25</b>  <b>0,25</b>  <b>0,25</b>  <b>0,5</b>

	<p>c) <math>A.B = \frac{\sqrt{x-2}}{\sqrt{x+2}} \cdot \frac{\sqrt{x-1}}{\sqrt{x-2}} = \frac{\sqrt{x-1}}{\sqrt{x+2}}</math></p> <p><math>P = \frac{1}{A.B} = \frac{\sqrt{x+2}}{\sqrt{x-1}} = 1 + \frac{3}{\sqrt{x-1}}</math></p> <p>Xét <math>x = 0 \Rightarrow P = -2</math></p> <p>Xét <math>x &gt; 0</math>; <math>x \geq 4</math>; <math>x \geq 1</math>; <math>x \in \mathbb{Z}</math> khi ó <math>\sqrt{x-1} &gt; 0</math> và <math>P_{\max} \Leftrightarrow \frac{1}{\sqrt{x-1}} \max \Leftrightarrow (\sqrt{x-1}) \min \Leftrightarrow \sqrt{x} \min \Leftrightarrow x = 2</math></p> <p>Có <math>x = 2 \Rightarrow P = 1 + \frac{3}{\sqrt{2-1}} = 4 + 3\sqrt{2} &gt; -2</math></p> <p>KL: Với <math>x \in \mathbb{Z}</math> tìm giá trị nhỏ nhất của <math>P = 4 + 3\sqrt{2} \Leftrightarrow x = 2</math></p>	<p><b>0,25</b></p> <p><b>0,25</b></p> <p><b>0,25</b></p>
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<p><b>Bài 4</b> <b>3,5</b></p>	 <p>1) a) Tính <math>BD = 10\text{cm}</math> <math>AH = 4,8\text{cm}</math> <math>\angle ABD = 36^{\circ}52'</math></p>	<p><b>0,25</b></p> <p><b>0,25</b></p> <p><b>0,25</b></p>
	<p>b) Cm: <math>AD^2 = DH \cdot DB</math> Cm: <math>AD^2 = AH \cdot AI</math> <math>\Rightarrow DH \cdot DB = AH \cdot AI</math></p>	<p><b>0,75</b></p> <p><b>0,25</b></p>
	 <p>2)</p>	<p><b>0,25</b></p>

	<p>a) + ABE cân t i B <math>\Rightarrow BEA = \frac{180^0 - B}{2}</math></p> <p>+ CED cân t i D <math>\Rightarrow CED = \frac{180^0 - C}{2}</math></p> <p><math>\Rightarrow BEA + CED = 90^0 \Rightarrow AED = 90^0</math></p>	<p><b>0,25</b></p> <p><b>0,25</b></p> <p><b>0,5</b></p>
	<p>b) + G i K là giao i m c a DE và AB, tính BK = 9cm <math>\Rightarrow</math> AK = 18cm</p> <p>+ K BH <math>\perp</math> DC t i H, tính c AD = BH = 24cm</p> <p><math>\Rightarrow AE = \frac{72}{5}cm; DE = \frac{96}{5}cm</math></p>	<p><b>0,5</b></p>
<p><b>Bài 5</b> <b>0,5</b></p>	<p><math>A = \frac{1}{\sqrt{1+\sqrt{2}}} + \frac{1}{\sqrt{3+\sqrt{4}}} + \frac{1}{\sqrt{5+\sqrt{6}}} + \dots + \frac{1}{\sqrt{79+\sqrt{80}}}</math></p> <p><math>B = \frac{1}{\sqrt{2+\sqrt{3}}} + \frac{1}{\sqrt{4+\sqrt{5}}} + \frac{1}{\sqrt{6+\sqrt{7}}} + \dots + \frac{1}{\sqrt{80+\sqrt{81}}}</math></p> <p><b>Khi ó A &gt; B và</b></p> <p><math>A+B = \frac{1}{\sqrt{1+\sqrt{2}}} + \frac{1}{\sqrt{2+\sqrt{3}}} + \frac{1}{\sqrt{3+\sqrt{4}}} + \dots + \frac{1}{\sqrt{79+\sqrt{80}}} + \frac{1}{\sqrt{80+\sqrt{81}}}</math></p> <p><math>= \frac{\sqrt{2}-1}{2-1} + \frac{\sqrt{3}-\sqrt{2}}{3-2} + \dots + \frac{\sqrt{80}-\sqrt{79}}{80-79} + \frac{\sqrt{81}-\sqrt{80}}{81-80}</math></p> <p><math>= \sqrt{81}-1=8</math></p> <p>T A + B = 8 và A &gt; B <math>\Rightarrow A &gt; 4</math> ( pcm)</p>	<p><b>0,25</b></p> <p><b>0,25</b></p>