

**Clasa a VII-a**  
**BAREM DE CORECTARE ȘI NOTARE**

**Notă:** orice rezolvare corectă, alta decât în baremul de mai jos, se punctează;

1.a)  $\frac{7}{2x+1} \in \mathbf{Z} \rightarrow (2x+1) \mid 7 \dots\dots\dots 1p.$   
 $D_7 = \{ \pm 1, \pm 7 \} \dots\dots\dots 1p.$   
 $x \in \{ -4, -1, 0, 3 \} \dots\dots\dots 1p.$

1.b)  $\frac{2x+9}{2x+3} \in \mathbf{Z} \rightarrow \frac{2x+3+6}{2x+3} = 1 + \frac{6}{2x+3} \dots\dots\dots 1p.$   
 $(2x+3) \mid 6 \dots\dots\dots 0,5p.$   
 $D_6 = \{ \pm 1, \pm 2, \pm 3, \pm 6 \} \dots\dots\dots 0,5p.$   
 $2x+3 = \text{nr. impar.} \dots\dots\dots 0,5p.$   
 $(2x+3) \in \{ \pm 1, \pm 3 \} \dots\dots\dots 0,5p.$   
 $x \in \{ -3, -2, -1, 0 \} \dots\dots\dots 1p.$

2).  $a > 0, b > 0 \dots\dots\dots 1p.$

$a^2 = \frac{1}{4017 + 2\sqrt{2008 \cdot 2009}} ; b^2 = \frac{1}{4017 + 2\sqrt{2007 \cdot 2010}} \dots\dots 2p.$

$2008 \cdot 2009 > 2007 \cdot 2010 \dots\dots\dots 1p.$   
 $a^2 < b^2 \dots\dots\dots 2p.$   
 $a < b \dots\dots\dots 1p.$

3). Figura corect executată..... 1p.  
 $BF = FC - BC = 7,2 \text{ cm} - 4 \text{ cm} = 3,2 \text{ cm} \dots\dots\dots 1p.$   
 $EF \parallel AC \rightarrow \Delta BEF \sim \Delta BAC \text{ ( T.F.A.)} \dots\dots\dots 1p.$   
 $\frac{BF}{BC} = \frac{3,2}{4} = \frac{4}{5} = k \dots\dots\dots 1p.$   
 $\frac{P_{\Delta BEF}}{P_{\Delta BAC}} = k = \frac{4}{5} \dots\dots\dots 1p.$   
 $P_{\Delta BAC} = 2\text{cm} + 3\text{cm} + 4\text{cm} = 9\text{cm} \dots\dots\dots 1p.$   
 $P_{\Delta BEF} = 7,2 \text{ cm} \dots\dots\dots 1p.$

4). - Figură corect executată .....0,5p.

- Fie  $EF \parallel AB$ ,  $E \in (AD)$ ,  $F \in (BC)$  și  $O \in EF$

$OF \parallel AB \rightarrow \Delta CAB \sim \Delta COF$  ( T.F.A.) .....0,5p.

$$\frac{OF}{AB} = \frac{CF}{CB} \quad (1) \dots\dots\dots 0,5p.$$

$EO \parallel AB \rightarrow \Delta DAB \sim \Delta DEO$  ( T.F.A.) .....0,5p.

$$\frac{EO}{AB} = \frac{DE}{DA} \quad (2) \dots\dots\dots 0,5p.$$

$$AB \parallel EF \parallel DC \rightarrow \frac{CF}{CB} = \frac{DE}{DA} \quad (3) \dots\dots\dots 0,5p.$$

- Din (1), (2) și (3)  $\rightarrow \frac{OF}{AB} = \frac{EO}{AB} \rightarrow OF = EO$ , (4)..... 0,5p.

$$AM \parallel EO \rightarrow \Delta PAM \sim \Delta PEO \text{ (T.F.A.)} \rightarrow \frac{MA}{OE} = \frac{PM}{PO} \quad (5) \dots\dots\dots 0,5p.$$

$$MB \parallel OF \rightarrow \Delta PMB \sim \Delta POF \text{ ( T.F.A.)} \rightarrow \frac{PM}{PO} = \frac{MB}{OF}, \quad (6) \dots\dots\dots 0,5p.$$

- Din (5) și (6)  $\rightarrow \frac{MA}{OE} = \frac{MB}{OF}$ , dar  $OE = OF \rightarrow MA = MB$  .....0,5p.

-Asemănător din  $\Delta POE \sim \Delta PND$  și  $\Delta POF \sim \Delta PNC \rightarrow$   
 $ND = NC$  .....2p.

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