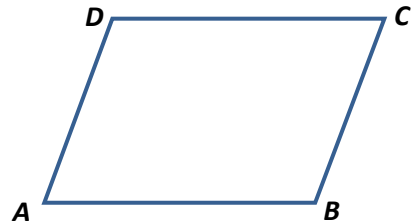


### Subiectul I

- $15 + 15 : 3 = 15 + 5 = 20$
  - 6 pixuri ..... 48 lei  
3 pixuri ..... x lei  
 $x = \frac{3 \cdot 48}{6} = 24 \text{ lei}$
  - $A \cap B = \{3, 4, 5\}$
  - $P_{\text{patrat}} = 4 \cdot l \Rightarrow 32,8 = 4 \cdot l \Rightarrow l = 32,8 : 4 = 8,2 \text{ cm}$
  - $360^\circ - (133^\circ + 67^\circ + 55^\circ) = 360^\circ - 255^\circ = 105^\circ$
  - $m_a = \frac{1+6+5}{3} = \frac{12}{3} = 4^\circ$
- B. 20**  
  
**D. 24**  
**C.**  
**B. 8,2 cm**  
**A. 105°**  
**C. 4°**

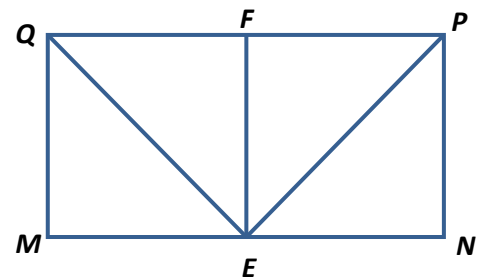
### Subiectul II

- 
- $5x - 6 = 4(x + 2)$   
 $5x - 6 = 4x + 8$   
 $5x - 4x = 8 + 6$   
 $x = 14$
- $E = 2^{2n+3} \cdot 25^n - 4^n \cdot 5^{2n}$   
 $E = 2^{2n+3} \cdot 5^{2n} - 2^{2n} \cdot 5^{2n}$   
 $E = 2^{2n} \cdot 5^{2n} (2^3 - 1) = 2^{2n} \cdot 5^{2n} \cdot 7 : 7$
- $f + b = 35$   
 $f = \frac{75}{100} \cdot b = \frac{3}{4} \cdot b$   
 $\frac{3b}{4} + b = 35$ , Aducem la același numitor  $\Rightarrow 3b + 4b = 140 \Rightarrow 7b = 140 \Rightarrow b = 20$   
 $f + 20 = 35 \quad f = 35 - 20 \quad f = 15$
- $a = \sqrt{16} = 4, \quad b = \sqrt{256} = 16 \Rightarrow m_a = \frac{4+16}{2} = \frac{20}{2} = 10$   
 $m_g = \sqrt{a \cdot b} = \sqrt{4 \cdot 16} = \sqrt{64} = 8 \Rightarrow m_a - m_g = 10 - 8 = 2$
- $A = (8\sqrt{3} + 14\sqrt{3} - 12\sqrt{3}) : \sqrt{75} = 10\sqrt{3} : 5\sqrt{3} = 2$ , nr. natural



### Subiectul III

- $MQ = 5 \text{ cm}$   
 $QP = 10 \text{ cm}$   
 $E = \text{mijlocul lui } MN \Rightarrow EM \equiv EN = 5 \text{ cm}$   
 a)  $A_{QPE} = 25 \text{ cm}^2$   
 b)  $\Delta PEQ \sim \Delta EMQ$   
 c)  $QE^2 = QM \cdot QP$



a) Construim  $EF \perp PQ \Rightarrow A_{\Delta QPE} = \frac{PQ \cdot EF}{2} = \frac{10 \cdot 5}{2} = \frac{50}{2} = 25 \text{ cm}^2$

b) În  $\Delta EMQ$  avem:

$$MQ \equiv ME = 5 \text{ cm}, m(\sphericalangle M) = 90^\circ (1)$$

$$\Rightarrow \Delta EMQ \text{ dreptunghic isoscel}$$

În  $\Delta PEQ$  avem:

$$m(\sphericalangle QEP) = 180^\circ - (45^\circ + 45^\circ) = 90^\circ (2)$$

$$QE \equiv PE \Rightarrow \Delta QEP \text{ dreptunghic isoscel}$$

Din (1) și (2)  $\Rightarrow \Delta PEQ \sim \Delta EMQ$

$$c) \text{ În } \triangle EMQ \xrightarrow{\text{T.Pitagora}} QE^2 = QM^2 + ME^2 = 25 + 25 = 50 \text{ cm}$$

$$QP = 10 \text{ cm}; QM = 5 \text{ cm} \Rightarrow QM^2 = QP \cdot QM$$

2.

$$AB + DC = 18\sqrt{5} \text{ cm}$$

$$AB - DC = 10\sqrt{5} \text{ cm}$$

$$CC' = 5\sqrt{5} \text{ cm}$$

$$a) A_{ABCD} = \frac{(AB+CD) \cdot CC'}{2} = \frac{18\sqrt{5} \cdot 5\sqrt{5}}{2} = \frac{18 \cdot 5 \cdot 5}{2} = 225 \text{ cm}^2$$

$$b) AD' = \frac{AB-DC}{2} = \frac{10\sqrt{5}}{2} = 5\sqrt{5} \text{ cm}$$

$$DD' = 5\sqrt{5} \text{ cm}$$

$$m(\sphericalangle DD'A) = 90^\circ$$

$$\Rightarrow \triangle DD'A \text{ dreptunghic isoscel} \Rightarrow m(\sphericalangle D'AD) = 45^\circ$$

$$\left. \begin{array}{l} DE \parallel BC \\ DC \parallel EB \end{array} \right\} \Rightarrow DEBC \text{ paralelogram} \Rightarrow BE \equiv BC, \text{ dar } BE \equiv BF \Rightarrow BF \equiv CD$$

$$\Rightarrow BFDC \text{ trapez isoscel}$$

$$\left. \begin{array}{l} BD \equiv CF \\ BD \equiv AC \end{array} \right\} \Rightarrow CF \equiv AC \Rightarrow \triangle ACF \text{ isoscel}$$

