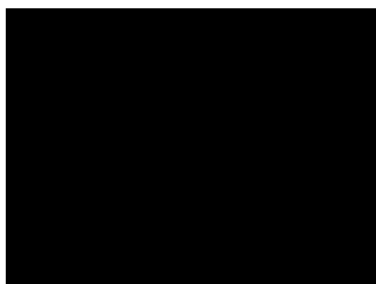


Test 5



- Toate subiectele sunt obligatorii.
- Se acordă zece puncte din oficiu.
- Timpul de lucru efectiv este de două ore.

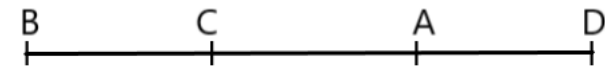
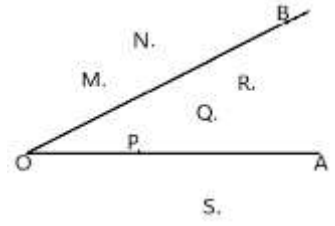
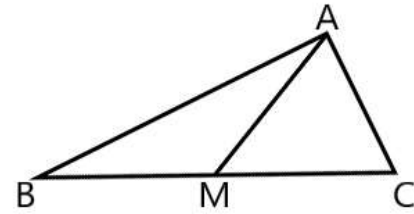
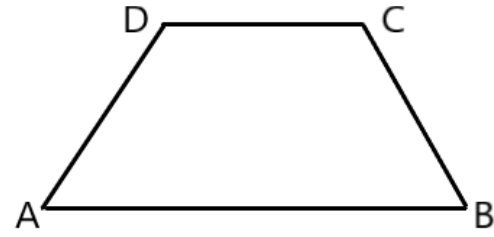
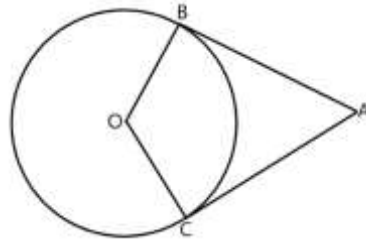
SUBIECTUL I

Încercuiește litera corespunzătoare răspunsului corect.

| | |
|----|---|
| 5p | 1. Rezultatul calculului $-2-3$ este: a) 1 b) 5 c) -1 d) -5 |
| 5p | 2. Dacă $\frac{a}{2} = \frac{b}{3}$ atunci $3a-2b$ este: a) 0 b) 1 c) 2 d) 3 |
| 5p | 3. Aproximarea prin lipsă la sutimi a numărului $5,(21)$ este: a) 5,20 b) 5,21 c) 5,22 d) 5,23 |
| 5p | 4. Numărul natural de forma $\overline{3x}$ divizibil cu 15 este: a) 30 b) 33 c) 35 d) 39 |
| 5p | 5. Rezultatul calculului $8 \cdot \sqrt{3} : 2 \cdot \sqrt{3}$ este: a) 4 b) 8 c) 12 d) 16 |
| 5p | 6. Alin a afirmat că $x \cdot x = 2x$, oricare ar fi numărul real x . Este adevărată sau falsă afirmația lui Alin? a) adevărată b) falsă |

SUBIECTUL II

Încercuiește litera corespunzătoare răspunsului corect.

| | | |
|----|---|---|
| 5p | <p>1. A este simetricul lui B față de C și D este simetricul lui C față de A, $BD=12$ cm. AC este:</p> <p>a) 8 cm b) 6 cm c) 4 cm d) 3 cm</p> |  |
| 5p | <p>2. Numărul punctelor situate în exteriorul unghiului AOB este:</p> <p>a) 2 b) 3 c) 4 d) 5</p> |  |
| 5p | <p>3. Triunghiul ABC are $AB=8$ cm, $AC=6$ cm și $BC=10$ cm. M este mijlocul laturii BC. Lungimea lui AM este:</p> <p>a) 5 cm b) 6 cm c) 8 cm d) 9 cm</p> |  |
| 5p | <p>4. ABCD este trapez cu baza mică CD congruentă cu laturile neparalele AD și BC, $AB=2CD$. Măsura unghiului A este:</p> <p>a) 80° b) 70° c) 60° d) 50°</p> |  |
| 5p | <p>5. AB și AC sunt tangente cercului de centru O și rază egală cu 5 cm, $AB=6$ cm. Aria patrulaterului ABOC este :</p> <p>a) 15 cm^2 b) 25 cm^2 c) 24 cm^2 d) 30 cm^2</p> |  |
| 5p | <p>6. Un acvariu este plin cu apă. În acvariu se scufundă complet 10 cuburi de piatră cu muchia de 0,5 dm. Din acvariu se varsă o cantitate de apă egală cu:</p> <p>a) 1,25 l b) 1 l c) 0,125 l d) 0,5 l</p> | |

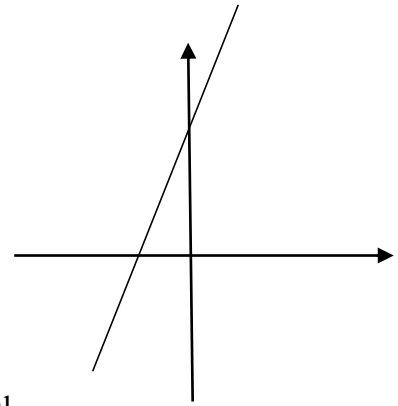
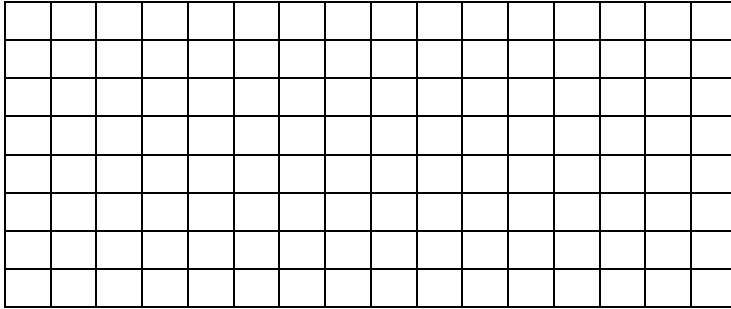
SUBIECTUL III

Scris rezolvările complete.

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| 5p | <p>1.Cel mai mare divizor comun al numerelor naturale a și b este 8, iar produsul lor este 384 . (2p) a) Irina afirmă că restul împărțirii lui a la 8 este 0. Este adevărată afirmația Irinei? Justifică răspunsul.</p> <table border="1" style="width: 100%; height: 80px; border-collapse: collapse;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>(3p) b) Află toate perechile de numere (a,b) care îndeplinesc condițiile din enunț.</p> <table border="1" style="width: 100%; height: 120px; border-collapse: collapse;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 5p | <p>2.Se consideră expresia $E(x) = (x+2)^2 + (x-3)^2 - x(x+1) - 11$, unde x este număr real. (2p) a) Arată că $E(x) = (x-2)(x-1)$, pentru orice număr real x.</p> <table border="1" style="width: 100%; height: 80px; border-collapse: collapse;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>(3p) b) Arată că $E(n)$ se divide cu 3 pentru orice număr natural n care nu-i multiplu de 3. .</p> <table border="1" style="width: 100%; height: 120px; border-collapse: collapse;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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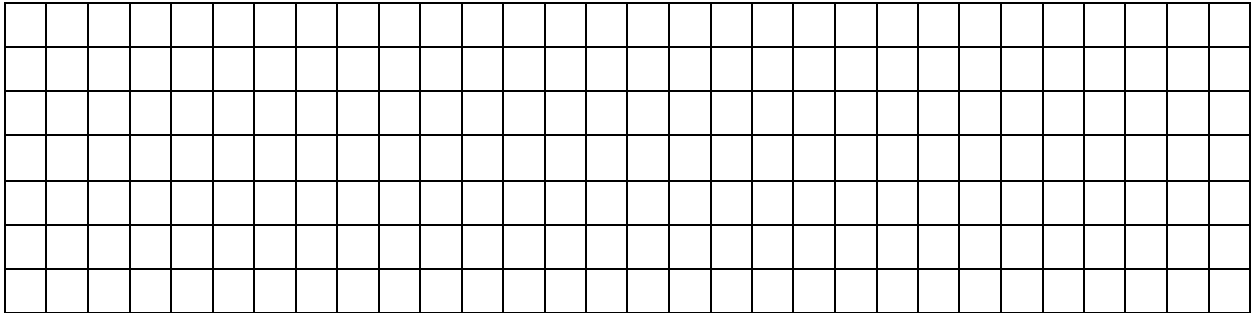
5p 3. Se consideră funcția $f : \mathbb{R} \rightarrow \mathbb{R}, f(x) = 3x + 3$.

(2p) a) Arată că $f(0) + f(1) = 9$



(3p) b) Arată că pentru orice număr natural nenul n , numărul

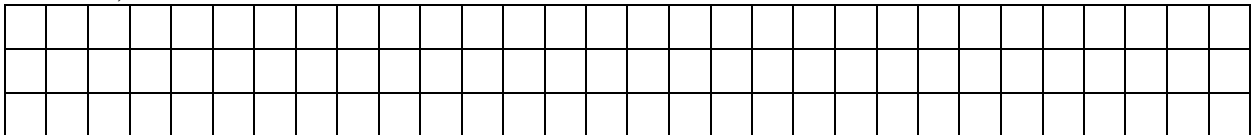
$a = \sqrt{\frac{2}{3}} \cdot [f(1) + f(2) + f(3) + \dots + f(n)] + n + 4$ este natural.



5p 4. Pe un perete dreptunghiular cu dimensiunile de 4 m și 2 m se pun plăci de faianță în formă de pătrat cu latura de 40 de cm.



(2p) a) Arată că aria unei plăci de faianță este de $0,16 \text{ m}^2$.



(3p) b) Câte plăci de faianță sunt necesare pentru acoperirea întregului perete?

