

**Mate 2000 Consolidare**  
**Clasa a VII-a, partea a II-a, 2018-2019**  
**TESTE DE AUTOEVALUARE**

– SOLUȚII –

**Test de autoevaluare – p. 21**

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- I.** 1.  $7a$ .  
2.  $3x + 6y$ .  
3.  $-2(\sqrt{2} + \sqrt{3})x$ .  
4.  $-2\sqrt{3}a$ .  
5.  $-3a$ .  
6.  $x$ .

- II.** 1. C. 2. C. 3. B. 4. D.

- III.** 1.  $x = \frac{1}{\sqrt{3}}$ .  
2.  $n = 2 \in \mathbb{N}$ .  
3.  $n = 3^2$ .  
4.  $E = \frac{1}{3}(a+3)(b+3)(c+3)$ .

**Test de autoevaluare – p. 41**

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- I.** 1.  $x(x-3)^2$ .  
2.  $(2^{4n} + 1)^2$ .  
3. 4.  
4.  $(2x^2 - 5x + 6)^2$   
5.  $(x-1)(x^3 + x^2 + 4)$ .  
6. 24.

- II.** 1. C. 2. B. 3. C. 4. D.

- III.** 1.  $n = (a^2 + b^2)(b^2 + c^2)(c^2 + a^2)$ .  
2.  $(6a^2 - 2a + 7)^2$ .  
3.  $(x^2 + x\sqrt{3} + 1)(x^2 - x\sqrt{3} + 1)$ .  
4.  $x = 8$ .

## Test de autoevaluare – p. 65

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- I.** 1. 3.  
2. 4.  
3. 8.  
4. 2.  
5. 2.  
6. 3.

- II.** 1. D. 2. B. 3. C. 4. D.

- III.** 1.  $-1$ .  
2. 3.  
3.  $5(3 - 2\sqrt{2})$ .  
4. a)  $x \in \{-7; 6\}$ ; b)  $x \in \{-8; 12\}$ .

## Test de autoevaluare – p. 75

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- I.** 1.  $x \in \{-5, -4, -3, -2, -1\}$ .  
2.  $x \in \{-4, -3, -2, -1, 1, 2\}$ .  
3.  $x \in \{4, 5, 6\}$ .  
4.  $x \in \{-5, -4, -3, -2, -1, 1, 2\}$ .  
5.  $x \in \{-5, -4, -3, -2, -1\}$ .  
6.  $x \in \{-3, -2, -1, 0, 1, 2\}$ .

- II.** 1. A. 2. A. 3. D. 4. D.

- III.** 1.  $x \in \{-5, -4, -3, -2, -1, 0\}$ .  
2.  $x \in \{-3, -2, -1, 0\}$ .  
3.  $x \in \{-6, -5, -4, -3, -2, -1, 0\}$ .  
4.  $A = \{1, 2, 3, 4, 5, 6, 7\}$ .

## Test de autoevaluare – p. 91

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- I.** 1.  $AB = 5$ .  
2.  $a = \pm 6$ .  
3.  $M(-1; 7)$ .  
4.  $a = -7; b = 16$ .  
5.  $15 + 5\sqrt{5}$ .  
6.  $\frac{3}{7}$ .

- II.** 1. D. 2. C. 3. A. 4. C.

**III.** 1.  $AB + BC = AC \Rightarrow A, B, C$  coliniare.

2.  $\mathcal{A}_{\Delta ABC} = \frac{5}{2}(u^2)$ .

3.  $M(3; -7)$ .

4.  $\mathcal{P} = 2\sqrt{37} + \sqrt{74}$ .

### Test de autoevaluare – p. 103

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**I.** 1.  $BC = 40$  cm.

2.  $18(1 + \sqrt{3})$  cm.

3.  $BC = 50$  cm.

4. 120 cm.

5.  $12\sqrt{3}$  cm.

6. 36 cm.

**II.** 1. D. 2. B. 3. B. 4. D.

**III.** 1. a)  $AB = 60$  cm;  $AC = 80$  cm;  $BC = 100$  cm;

b)  $AD = 48$  cm.

2.  $AB = 9\sqrt{5}$  cm;  $AC = 18\sqrt{5}$  cm. Deci  $AB^2 + AC^2 = BC^2 \Rightarrow m(\sphericalangle BAC) = 90^\circ$ .

3. a)  $AB = 48$  cm;  $AC = 90$  cm;  $BC = 102$  cm;

b)  $\frac{720}{17}$  cm.

4. a)  $h = 12$  cm;

b)  $12\sqrt{2}$  cm; 20 cm.

### Test de autoevaluare – p. 127

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**I.** 1.  $432$  cm<sup>2</sup>.

2.  $144\sqrt{3}$  cm<sup>2</sup>.

3.  $288$  cm<sup>2</sup>.

4.  $432$  cm<sup>2</sup>.

5.  $192$  cm<sup>2</sup>.

6.  $864\sqrt{3}$  cm<sup>2</sup>.

**II.** 1. B. 2. D. 3. B. 4. D.

**III.** 1.  $\mathcal{A}_{EFC} = 240$  cm<sup>2</sup>;  $d(E, FC) = 8\sqrt{5}$  cm.

2.  $\mathcal{A}_{ABCD} = 2700$  cm<sup>2</sup>.

3.  $\mathcal{A}_{ABCD} = 504$  cm<sup>2</sup>.

4. a)  $\mathcal{P} = 12(\sqrt{2} + \sqrt{3} + 5)$  cm;  $AC = 12\sqrt{6}$  cm;  $BD = 12\sqrt{11}$  cm;

b)  $\mathcal{A}_{ABCD} = 360\sqrt{2}$  cm<sup>2</sup>.

## Test de autoevaluare – p. 141

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- I.** 1. 48 cm.  
2. 15 cm.  
3. 40 cm.  
4.  $120^\circ$ .  
5.  $R\sqrt{3}$ .  
6. 18 cm.

- II.** 1. C. 2. D. 3. B. 4. D.

- III.** 1.  $\mathcal{P} = 20(5\sqrt{2} + 7)$  cm;  $\mathcal{A} = 4900$  cm<sup>2</sup>.  
2.  $\mathcal{P}_{OAPB} = 74 + 2\sqrt{231}$  cm;  $\mathcal{A}_{OAPB} = 264 + 26\sqrt{231}$  cm<sup>2</sup>.  
3. a)  $m(\sphericalangle M) = 85^\circ$ ;  $m(\sphericalangle N) = 100^\circ$ ;  $m(\sphericalangle P) = 95^\circ$ ;  $m(\sphericalangle Q) = 80^\circ$ ;  
b)  $m(\sphericalangle PMQ) = m(\sphericalangle PNQ) = 65^\circ$ ;  $m(\sphericalangle PMN) = m(\sphericalangle PQN) = 20^\circ$ ;  
 $m(\sphericalangle NPM) = m(\sphericalangle MQN) = 60^\circ$ ;  $m(\sphericalangle MNQ) = m(\sphericalangle QPM) = 35^\circ$ .  
4.  $m(\widehat{BD}) = m(\widehat{CD}) = 60^\circ$ ;  $m(\widehat{CE}) = m(\widehat{AE}) = 50^\circ$ ;  $m(\widehat{BF}) = m(\widehat{AF}) = 70^\circ$ .