

## Tiết 5. **LUYỆN TẬP PHÉP NHÂN VÀ PHÉP KHAI PHƯƠNG**

**\*Yêu cầu cần đạt:**

- Nắm vững công thức liên hệ giữa phép nhân và phép khai phương.
- Vận dụng công thức để giải các dạng toán tính, rút gọn biểu thức

**\*Công thức cần nhớ:**

$$+\sqrt{A^2} = |A|$$

$$; + \sqrt{A \cdot B} = \sqrt{A} \cdot \sqrt{B} \quad (\text{sử dụng hai chiều})$$

## Bài 1. Tính:

- $1/ \sqrt{5} \cdot \sqrt{80}$
- $2/ \sqrt{50} \cdot \sqrt{2}$
- $3/ \sqrt{3} \cdot \sqrt{75}$
- $4/ \sqrt{7} \cdot \sqrt{28}$
- $5/ \sqrt{11} \cdot \sqrt{44}$
- $6/ \sqrt{144 \cdot 0,25}$
- $7/ \sqrt{250 \cdot 160 \cdot 0,04}$
- $8/ \sqrt{36 \cdot 0,64 \cdot 1,96}$
- $9/ \sqrt{7 \cdot 63 \cdot 0,81}$
- $10/ \sqrt{121 \cdot 256 \cdot 16}$

# Bài giải

- $1/ \sqrt{5} \cdot \sqrt{80}$

$$= \sqrt{5 \cdot 80} = \sqrt{400} = 20$$

- $2/ \sqrt{50} \cdot \sqrt{2}$

$$= \sqrt{50 \cdot 2} = \sqrt{100} = 10$$

- $3/ \sqrt{3} \cdot \sqrt{75}$

$$= \sqrt{3 \cdot 75} = \sqrt{225} = 15$$

- $4/ \sqrt{7} \cdot \sqrt{28}$

$$= \sqrt{7 \cdot 28} = \sqrt{196} = 14$$

- $5/ \sqrt{11} \cdot \sqrt{44}$

$$= \sqrt{11 \cdot 44} = \sqrt{484} = 22$$

## Bài giải

- $6/ \sqrt{144.0,25}$   
 $= \sqrt{36}$

- $= 6$       **(cách 1)**

- $\sqrt{144.0,25}$

- $= \sqrt{144} \cdot \sqrt{0,25}$

- $= 12.0,5 = 6$       **(cách 2)**

- $7/ \sqrt{250.160.0,04}$

- $= \sqrt{1600} = 40$       **(cách 1)**

- $\sqrt{250.160.0,04} = \sqrt{25.16.4} = \sqrt{25} \cdot \sqrt{16} \cdot \sqrt{4} = 5.4.2 = 40$       **(cách 2)**

- $8/ \sqrt{36.0,64.1,96}$

- $= \sqrt{45,1584} = 6,72$       **(cách 1)**

- $\sqrt{36.0,64.1,96} = \sqrt{36} \cdot \sqrt{0,64} \cdot \sqrt{1,96} = 6.0,8.1,4 = 6,72$       **(cách 2)**

# Bài giải

- $9/ \sqrt{7.63.0,81}$   
 $= \sqrt{357,21}$   
 $= 18,9$       (*cách 1*)

$$\sqrt{7.63.0,81}$$
$$= \sqrt{7.7.9.0,81} = \sqrt{7^2 3^2 (0,9)^2} = 7.3.0,9 = 18,9 \quad (\text{cách 2})$$

- $10/ \sqrt{121.256.16}$   
 $= \sqrt{495616} = 704$       (*cách 1*)

$$\sqrt{121.256.16}$$
$$= \sqrt{121} \cdot \sqrt{256} \cdot \sqrt{16} = 11.16.4 = 704 \quad (\text{cách 2})$$

## Bài 2. Rút gọn biểu thức:

$$\bullet 1/ \sqrt{(5 + \sqrt{5})^2} + \sqrt{(2 - \sqrt{5})^2}$$

$$\bullet 2/ \sqrt{(1 - \sqrt{2})^2} + \sqrt{(7 - \sqrt{2})^2}$$

$$\bullet 3/ \sqrt{(4 - \sqrt{7})^2} + \sqrt{(1 - \sqrt{7})^2}$$

$$\bullet 4/ \sqrt{(4 - \sqrt{15})^2} + \sqrt{(6 - \sqrt{15})^2}$$

$$\bullet 5/ \sqrt{(3 + \sqrt{2})^2} - \sqrt{(1 - \sqrt{2})^2}$$

$$6/ \sqrt{(5 - \sqrt{11})^2} - \sqrt{(3 - \sqrt{11})^2}$$

$$7/ \sqrt{(5 - \sqrt{19})^2} + \sqrt{(6 - \sqrt{19})^2}$$

$$8/ \sqrt{(10 - \sqrt{95})^2} + \sqrt{(4 + \sqrt{95})^2}$$

$$9/ \sqrt{(3 - 2\sqrt{2})^2} - \sqrt{(4 - 2\sqrt{2})^2}$$

$$10/ \sqrt{(5 - 4\sqrt{3})^2} - \sqrt{(7 - 4\sqrt{3})^2}$$

# Bài giải

$$\begin{aligned} & \bullet 1/ \sqrt{(5 + \sqrt{5})^2} + \sqrt{(2 - \sqrt{5})^2} \\ &= |5 + \sqrt{5}| + |2 - \sqrt{5}| \\ &= (5 + \sqrt{5}) + (\sqrt{5} - 2) \\ &= 3 + 2\sqrt{5} \end{aligned}$$

*(do  $5 + \sqrt{5} > 0$  và  $2 - \sqrt{5} < 0$ )*

$$\begin{aligned} & \bullet 2/ \sqrt{(1 - \sqrt{2})^2} + \sqrt{(7 - \sqrt{2})^2} \\ &= |1 - \sqrt{2}| + |7 - \sqrt{2}| \\ &= (\sqrt{2} - 1) + (7 - \sqrt{2}) \\ &= 6 \end{aligned}$$

*(do  $1 - \sqrt{2} < 0$  và  $7 - \sqrt{2} > 0$ )*

# Bài giải

$$\begin{aligned} & \bullet 3/ \sqrt{(4 - \sqrt{7})^2} + \sqrt{(1 - \sqrt{7})^2} \\ & = |4 - \sqrt{7}| + |1 - \sqrt{7}| \\ & = (4 - \sqrt{7}) + (\sqrt{7} - 1) \\ & = 3 \end{aligned}$$

*(do  $4 - \sqrt{7} > 0$  và  $1 - \sqrt{7} < 0$ )*

$$\begin{aligned} & \bullet 4/ \sqrt{(4 - \sqrt{15})^2} + \sqrt{(6 - \sqrt{15})^2} \\ & = |4 - \sqrt{15}| + |6 - \sqrt{15}| \\ & = (4 - \sqrt{15}) + (6 - \sqrt{15}) \\ & = 10 - 2\sqrt{15} \end{aligned}$$

*(do  $4 - \sqrt{15} > 0$  và  $6 - \sqrt{15} > 0$ )*

# Bài giải

$$\begin{aligned} & \bullet 5/ \sqrt{(3 + \sqrt{2})^2} - \sqrt{(1 - \sqrt{2})^2} \\ &= |3 + \sqrt{2}| - |1 - \sqrt{2}| \\ &= (3 + \sqrt{2}) - (\sqrt{2} - 1) \quad (\text{do } 1 - \sqrt{2} < 0) \\ &= 4 \end{aligned}$$

$$\begin{aligned} & \bullet 6/ \sqrt{(5 - \sqrt{11})^2} - \sqrt{(3 - \sqrt{11})^2} \\ &= |5 - \sqrt{11}| - |3 - \sqrt{11}| \\ &= (5 - \sqrt{11}) - (\sqrt{11} - 3) \\ &= 8 - 2\sqrt{11} \end{aligned}$$

# Bài giải

- 7/  $\sqrt{(5 - \sqrt{19})^2} + \sqrt{(6 - \sqrt{19})^2}$   
 $= |5 - \sqrt{19}| + |6 - \sqrt{19}|$   
 $= (5 - \sqrt{19}) + (6 - \sqrt{19})$   
 $= 11 - 2\sqrt{19}$
- 8/  $\sqrt{(10 - \sqrt{95})^2} + \sqrt{(4 + \sqrt{95})^2}$   
 $= |10 - \sqrt{95}| + |4 + \sqrt{95}|$   
 $= (10 - \sqrt{95}) + (4 + \sqrt{95})$   
 $= 14$

# Bài giải

$$\begin{aligned} \bullet 9/ & \sqrt{(3 - 2\sqrt{2})^2} - \sqrt{(4 - 2\sqrt{2})^2} \\ &= |3 - 2\sqrt{2}| - |4 - 2\sqrt{2}| \\ &= (3 - 2\sqrt{2}) - (4 - 2\sqrt{2}) \\ &= -1 \end{aligned}$$

$$\begin{aligned} \bullet 10/ & \sqrt{(5 - 4\sqrt{3})^2} - \sqrt{(7 - 4\sqrt{3})^2} \\ &= |5 - 4\sqrt{3}| - |7 - 4\sqrt{3}| \\ &= (4\sqrt{3} - 5) - (7 - 4\sqrt{3}) \\ &= -12 + 8\sqrt{3} \end{aligned}$$

## Bài 3. Rút gọn biểu thức:

- 1/  $\sqrt{4 + 2\sqrt{3}} + \sqrt{19 - 8\sqrt{3}}$
- 2/  $\sqrt{4 - 2\sqrt{3}} + \sqrt{12 - 6\sqrt{3}}$
- 3/  $\sqrt{28 + 10\sqrt{3}} + \sqrt{7 - 4\sqrt{3}}$
- 4/  $\sqrt{6 - 2\sqrt{5}} + \sqrt{14 - 6\sqrt{5}}$
- 5/  $\sqrt{18 - 8\sqrt{2}} - \sqrt{27 - 10\sqrt{2}}$

- 6/  $\sqrt{10 - 4\sqrt{6}} - \sqrt{42 + 12\sqrt{6}}$
- 7/  $\sqrt{9 - 4\sqrt{5}} - \sqrt{21 - 8\sqrt{5}}$
- 8/  $\sqrt{9 - 4\sqrt{2}} + \sqrt{12 - 8\sqrt{2}}$
- 9/  $\sqrt{49 - 8\sqrt{3}} - \sqrt{52 + 16\sqrt{3}}$
- 10/  $\sqrt{16 + 6\sqrt{7}} - \sqrt{23 - 8\sqrt{7}}$

$$1/\sqrt{4 + 2\sqrt{3}} + \sqrt{19 - 8\sqrt{3}}$$

$$= \sqrt{(\sqrt{3} + 1)^2} + \sqrt{(4 - \sqrt{3})^2}$$

$$= |\sqrt{3} + 1| + |4 - \sqrt{3}|$$

$$= (\sqrt{3} + 1) + (4 - \sqrt{3})$$

$$= 5$$

$$2 / \sqrt{4 - 2\sqrt{3}} + \sqrt{12 - 6\sqrt{3}}$$

$$= \sqrt{(\sqrt{3} - 1)^2} + \sqrt{(3 - \sqrt{3})^2}$$

$$= |\sqrt{3} - 1| + |3 - \sqrt{3}|$$

$$= (\sqrt{3} - 1) + (3 - \sqrt{3})$$

$$= 2$$

$$3 / \sqrt{28 + 10\sqrt{3}} + \sqrt{7 - 4\sqrt{3}}$$

$$= \sqrt{(5 + \sqrt{3})^2} + \sqrt{(2 - \sqrt{3})^2}$$

$$= |5 + \sqrt{3}| + |2 - \sqrt{3}|$$

$$= (5 + \sqrt{3}) + (2 - \sqrt{3})$$

$$= 7$$

$$4 / \sqrt{6 - 2\sqrt{5}} + \sqrt{14 - 6\sqrt{5}}$$

$$= \sqrt{(\sqrt{5} - 1)^2} + \sqrt{(3 - \sqrt{5})^2}$$

$$= |\sqrt{5} - 1| + |3 - \sqrt{5}|$$

$$= (\sqrt{5} - 1) + (3 - \sqrt{5})$$

$$= 2$$

$$5/\sqrt{18 - 8\sqrt{2}} - \sqrt{27 - 10\sqrt{2}}$$

$$= \sqrt{(4 - \sqrt{2})^2} - \sqrt{(5 - \sqrt{2})^2}$$

$$= |4 - \sqrt{2}| - |5 - \sqrt{2}|$$

$$= (4 - \sqrt{2}) - (5 - \sqrt{2})$$

$$= -1$$

$$6 / \sqrt{10 - 4\sqrt{6}} - \sqrt{42 + 12\sqrt{6}}$$

$$= \sqrt{(\sqrt{6} - 2)^2} - \sqrt{(6 + \sqrt{6})^2}$$

$$= |\sqrt{6} - 2| - |6 + \sqrt{6}|$$

$$= (\sqrt{6} - 2) - (6 + \sqrt{6})$$

$$= -8$$

$$7 / \sqrt{9 - 4\sqrt{5}} - \sqrt{21 - 8\sqrt{5}}$$

$$= \sqrt{(\sqrt{5} - 2)^2} - \sqrt{(4 - \sqrt{5})^2}$$

$$= |\sqrt{5} - 2| - |4 - \sqrt{5}|$$

$$= (\sqrt{5} - 2) - (4 - \sqrt{5})$$

$$= -6 + 2\sqrt{5}$$

$$8 / \sqrt{9 - 4\sqrt{2}} + \sqrt{12 - 8\sqrt{2}}$$

$$= \sqrt{(2\sqrt{2} - 1)^2} + \sqrt{(2\sqrt{2} - 2)^2}$$

$$= |2\sqrt{2} - 1| + |2\sqrt{2} - 2|$$

$$= (2\sqrt{2} - 1) + (2\sqrt{2} - 2)$$

$$= -3 + 4\sqrt{2}$$

$$9/\sqrt{49 - 8\sqrt{3}} - \sqrt{52 + 16\sqrt{3}}$$

$$= \sqrt{(4\sqrt{3} - 1)^2} - \sqrt{(4\sqrt{3} + 2)^2}$$

$$= |4\sqrt{3} - 1| - |4\sqrt{3} + 2|$$

$$= (4\sqrt{3} - 1) - (4\sqrt{3} + 2)$$

$$= -3$$

$$10/\sqrt{16 + 6\sqrt{7}} - \sqrt{23 - 8\sqrt{7}}$$

$$= \sqrt{(3 + \sqrt{7})^2} - \sqrt{(4 - \sqrt{7})^2}$$

$$= |3 + \sqrt{7}| - |4 - \sqrt{7}|$$

$$= (3 + \sqrt{7}) - (4 - \sqrt{7})$$

$$= -1 + 2\sqrt{7}$$