

Algebra II - techniques 3

Multiple Choice Test

1. The value of $\sqrt{50}$ is the same as:

- (a) $10\sqrt{5}$ (b) $2\sqrt{5}$
(c) $5\sqrt{10}$ (d) $5\sqrt{2}$
(e) I don't know.

2. The value of $\sqrt{6} \times \sqrt{54}$ is the same as:

- (a) $9\sqrt{6}$ (b) $3\sqrt{6}$
(c) 9 (d) 18
(e) I don't know.

3. The **simplest** form of $\sqrt{72}$ is:

- (a) $9\sqrt{8}$ (b) $6\sqrt{2}$
(c) $2\sqrt{18}$ (d) It cannot be written any more simply.
(e) I don't know.

4. The value of $\frac{1}{\sqrt{2}}$ is the same as:

- (a) $-2^{\frac{1}{2}}$ (b) $\frac{1}{2}\sqrt{2}$
(c) $-2^{-\frac{1}{2}}$ (d) None of these.
(e) I don't know.

5. Simplify $\sqrt{18} - \sqrt{8}$:

- (a) $\sqrt{2}$ (b) $\frac{3}{2}$
(c) $\sqrt{10}$ (d) $2\sqrt{2}$
(e) I don't know.

6. The **correct** value of $(\sqrt{11}-2)(\sqrt{11}+2)$ is:

- (a) 7
(b) $7-4\sqrt{11}$
(c) 9
(d) 15
(e) I don't know.

7. The **correct** value of $\frac{\sqrt{3}}{\sqrt{6}}$ is:

- (a) $\sqrt{2}$
(b) $\frac{1}{2}$
(c) $\frac{1}{\sqrt{2}}$
(d) $2\sqrt{2}$
(e) I don't know.

8. Simplify $2(\sqrt{3}-\sqrt{2})+3(2\sqrt{2}-\sqrt{3})$.

- (a) $8\sqrt{3}-5\sqrt{2}$
(b) None of these.
(c) $5(\sqrt{2}-\sqrt{3})$
(d) $4\sqrt{2}-\sqrt{3}$
(e) I don't know.

9. Simplify $(2\sqrt{2}+5)^2$.

- (a) $33+20\sqrt{2}$
(b) 33
(c) 29
(d) $29+4\sqrt{2}$
(e) I don't know.

10. Simplify $(\sqrt{5}+2\sqrt{7})^2+(\sqrt{5}-2\sqrt{7})^2$.

- (a) $8\sqrt{35}$
(b) $66+8\sqrt{35}$
(c) 10
(d) 66
(e) I don't know.

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Multiple Choice Test Solutions

1 The answer is d)

$$\sqrt{50} = \sqrt{25 \times 2} = \sqrt{25} \sqrt{2} = 5\sqrt{2}$$

2 The answer is d)

$$\sqrt{6} \times \sqrt{54} = \sqrt{6} \times \sqrt{6} \times \sqrt{9} = 6 \times 3 = 18$$

3 The answer is b)

$$\sqrt{72} = \sqrt{9 \times 8} = \sqrt{36 \times 2} = 6\sqrt{2}$$

4 The answer is b)

$$\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{1}{2}\sqrt{2}$$

5 The answer is a)

$$\sqrt{18} - \sqrt{8} = \sqrt{9 \times 2} - \sqrt{4 \times 2} = 3\sqrt{2} - 2\sqrt{2} = \sqrt{2}$$

6 The answer is a)

$$\begin{aligned} & (\sqrt{11} - 2)(\sqrt{11} + 2) \quad \text{Difference of squares} \\ & = 11 - 4 \quad \quad \quad 8 \sqrt{11}^2 = 11 \\ & = 7 \end{aligned}$$

7 The answer is c)

$$\frac{\sqrt{3}}{\sqrt{6}} = \frac{\sqrt{\cancel{3}}}{\sqrt{\cancel{3} \times \sqrt{2}}} = \frac{1}{\sqrt{2}}$$

8 The answer is d)

$$\begin{aligned} & 2(\sqrt{3} - \sqrt{2}) + 3(2\sqrt{2} - \sqrt{3}) \\ &= 2\sqrt{3} - 2\sqrt{2} + 6\sqrt{2} - 3\sqrt{3} \\ &= 4\sqrt{2} - \sqrt{3} \end{aligned}$$

9 The answer is a)

$$\begin{aligned} (2\sqrt{2} + 5)^2 &= [2\sqrt{2}]^2 + 20\sqrt{2} + 25 \\ &= 8 + 20\sqrt{2} + 25 \\ &= 33 + 20\sqrt{2} \end{aligned}$$

10 The answer is d)

$$\begin{aligned} & (\sqrt{5} + 2\sqrt{7})^2 + (\sqrt{5} - 2\sqrt{7})^2 \\ &= 5 + 4\sqrt{35} + 28 + 5 - 4\sqrt{35} + 28 \\ &= 66 \end{aligned}$$