

A2.A.14: Operations with Radicals 3: Perform addition, subtraction, multiplication, and division of radical expressions

1 Simplify: $\sqrt{\frac{a}{b}} \times \sqrt{\frac{b}{a}}$

7 Simplify: $(\sqrt{x} - \sqrt{y})^2$

2 Simplify: $\sqrt{\frac{a^2b}{c}} \times \sqrt{\frac{a^2c^3}{b}}$

8 Simplify: $(2\sqrt{a} - b)(a + 2\sqrt{b})$

3 Express $\frac{\sqrt{108x^5y^8}}{\sqrt{6xy^5}}$ in simplest radical form.

9 The expression $4ab\sqrt{2b} - 3a\sqrt{18b^3} + 7ab\sqrt{6b}$ is equivalent to

1) $2ab\sqrt{6b}$

2) $16ab\sqrt{2b}$

3) $-5ab + 7ab\sqrt{6b}$

4) $-5ab\sqrt{2b} + 7ab\sqrt{6b}$

4 Simplify: $\left(\frac{x+1}{x-1} \sqrt{\frac{x-1}{x+1}}\right) \left(\sqrt{x^2-1}\right)$

10 Simplify: $\sqrt{a} + 2\sqrt{ab^2}$

5 The expression $(2 - 3\sqrt{x})^2$ is equivalent to

1) $4 - 9x$

2) $4 - 3x$

3) $4 - 12\sqrt{x} + 9x$

4) $4 - 12\sqrt{x} + 6x$

11 Simplify: $\sqrt{\frac{a}{2}} + \frac{\sqrt{2a}}{2}$

12 Simplify: $b\sqrt{a} - a^2b^2\sqrt{\frac{1}{ab^2}} + \sqrt{a^3b^2}$

6 The legs of a right triangle are represented by $x + \sqrt{2}$ and $x - \sqrt{2}$. The length of the hypotenuse of the right triangle is represented by

1) $\sqrt{2x^2 + 4}$

2) $2x^2 + 4$

3) $x\sqrt{2} + 2$

4) $\sqrt{x^2 - 2}$

13 Simplify: $\frac{\sqrt{x} - \sqrt{x-2}}{\sqrt{x} + \sqrt{x-2}}$

A2.A.14: Operations with Radicals 3: Perform addition, subtraction, multiplication, and division of radical expressions

Answer Section

1 ANS:
1

REF: 089312a1

2 ANS:
 a^2b

REF: 099911a1

3 ANS:
$$\frac{\sqrt{108x^5y^8}}{\sqrt{6xy^5}} = \sqrt{18x^4y^3} = 3x^2y\sqrt{2y}$$

REF: 011133a2

4 ANS:
 $x + 1$

REF: 019911a1

5 ANS: 3 REF: 061407a2

6 ANS: 1
$$c = \sqrt{\left(x + \sqrt{2}\right)^2 + \left(x - \sqrt{2}\right)^2} = \sqrt{x^2 + 2\sqrt{2}x + 2 + x^2 - 2\sqrt{2}x + 2} = \sqrt{2x^2 + 4}$$

REF: 011626a2

7 ANS:
 $x - 2\sqrt{xy} + y$

REF: 039309a1

8 ANS:
 $2a\sqrt{a} + 4\sqrt{ab} - ab - 2b\sqrt{b}$

REF: 090404a1

9 ANS: 4 REF: fall0918a2

10 ANS:
 $(2b + 1)\sqrt{a}$

REF: 099511a1

11 ANS:
 $\sqrt{2a}$

REF: 119411a1

12 ANS:

$$b\sqrt{a}$$

REF: 060505al

13 ANS:

$$x - 1 - \sqrt{x^2 - 2x}$$

REF: 030504al